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# American Journal of Public Health

## And The Nation's Health

Volume 25 December, 1935 Number 12

Public Health
A Problem in Distribution
BROWN

Administrative Practice
DUBLIN
WINSLOW
RICE

Public Health Nursing
HAUPT

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LENROOT

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# THE TIN CONTAINER

The simple facts about many things encountered in everyday life are sometimes not understood and, frequently, their values are not fully appreciated by persons thrown in daily contact with them. Among such things, we can include the so-called "tin cans" and the foods which they may contain.

For example, many may have wondered—but, certainly, few have inquired—as to the origin of the popular designation for tin containers. The name "tin cans" arose from an abbreviation of the term "tin cannisters" applied to them during the latter part of the last century by English manufacturers. Such a name is hardly correct, since "tin cans" are made from mild steel which has been rolled into thin sheets and coated with pure tin. Actually, the can is about ninety-eight percent iron.

Again, interest has sometimes been expressed in regard to the nature and purpose of the enamels found in cans in which certain products are packed. These enamels are essentially lacquers developed by years of intensive research; they are baked on the tin surface at high temperatures. Their chief purpose is to preserve natural flavor and color characteristics of some foods. While desirable in certain instances, enameled cans are not necessary to insure a wholesome canned product.

The facts about the foods contained in cans are equally simple. Canned foods are merely selected foods, which, after preparatory operations, are hermetically sealed in tin containers from which most of the air has been excluded. The preservation of the foods is then effected by a heat treatment.

The nutritional values of commercially canned foods have been established by more than a decade of biochemical research. Reference to recent articles (1), (2), together with those publications listed in their bibliographies, will permit the reader to determine for himself how favorably commercially canned foods have stood the test of actual scientific scrutiny.

**AMERICAN CAN COMPANY**
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*This is the seventh in a series of monthly articles, which will summarize, for your convenience, the conclusions about canned foods which authorities in nutritional research have reached. We want to make this series valuable to you, and so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles.*

The Seal of Acceptance denotes that the statements in this advertisement are acceptable to the Committee on Foods of the American Medical Association.

American Journal of Public Health
*and* THE NATION'S HEALTH

Volume 25 December, 1935 Number 12

# Public Health A Problem in Distribution*

WALTER H. BROWN, M.D., F.A.P.H.A.
*Professor of Hygiene, Stanford University, Palo Alto, Calif.*

THE address by your President-Elect at this time marks a departure from an established custom of the Association. In past years, it has been the duty of the President to report to you upon the state of the Association and present his recommendations for the future at the end of his term of office. It was his "swan song."

This new practice of permitting the incoming presiding officer to present his views at the beginning of his service has both advantages and disadvantages. It affords him an opportunity to indicate his evaluation of public health problems of the day and also assists in securing action upon them by the Association. On the other hand, it detracts somewhat from the objective point of view that would be possible at the end of his term.

Our retiring President, Dr. Bishop, has relieved me of the responsibility for reporting upon the state of the Association, and has presented a clear-cut picture of many of the important problems before us. This leaves me free to devote the time at my disposal to a discussion of some fundamentals that need reconsideration if public health is to retain its rightful place in the new order of society.

As a background for our discussion it will be profitable to recall the great lag between our present knowledge of the cause, cure, and prevention of disease and the degree of success in securing an application of this knowledge. Within the lifetime of the Association, modern scientific investigation has placed in our hands the tools for the control of many of the communicable diseases, and has blazed the trail that will lead to the discovery of the causes and methods of control of the remaining ones. The complex and hidden causes of non-communicable diseases—such as heart disease, nephritis, and cancer, are yielding sufficient of their secrets to permit successful attacks upon them. We do not lack the knowledge of ways to reduce infant and maternal mortality. Even the difficult problem of mental diseases has reached the stage where cure is possible and prevention is often within our grasp.

* Address of the President-Elect delivered at the Second General Session of the American Public Health Association at the Sixty-fourth Annual Meeting in Milwaukee, Wis., October 9, 1935.

This is not a mere enumeration of theoretical statements gleaned from the proceedings of scientific societies. It represents what has been shown to be true wherever qualified public workers have been given an opportunity to secure application of this health knowledge. There is no need to prove such a statement for this audience. You are engaged in demonstrating its truth in your daily work. There *is* need, however, of raising the question as to why your demonstrations have not resulted in a wider distribution and more stable maintenance of public health services.

It may be useful for us to remind ourselves of some rather unpleasant facts. Notwithstanding our creditable progress during the last decade, a large percentage of the population of our country remains without essential public health services. The qualifications, tenure, and salaries of our health workers are far from satisfactory. Partisan politics all too frequently dominates the appointment of the official, as well as administration and tenure of office. Our budgets for health service are small compared with other governmental agencies. Even these inadequate appropriations have been cut during the depression to the point of destruction of many essential services. Finally, and perhaps of greatest significance, no spontaneous protest has arisen from the public. You may charge me with painting a dismal picture. I am sorry, but these are facts. Our most important duty at this time is to face facts, if we are to plan wisely for the future.

The first step in this procedure would seem to be a critical analysis of the factors underlying these conditions. Our basic problem is finding more successful methods for securing a wider distribution of what biology, medicine, and administration have taught us will protect and improve human health.

Therefore, I invite you to consider with me the topic: "Public Health—A Problem in Distribution." In common with our industrial confrères we have produced a great wealth of valuable products but have failed to secure adequate methods for equable distribution.

The essentials of a public health program that we now accept are the result of many years' experience of our leading health workers, crystallized and made practical through the constructive work of the Committee on Administrative Practice. In the field of federal and state services the details are not so clearly defined. There is need, as we will take occasion to point out later, for further clarification in this area. However, there can be no disagreement as to what the essential factors are that make possible a sound public health program in any field. We would enumerate them as: sufficient legal power to permit effective administration, adequate budgets, properly trained personnel, and intelligent public support.

It would seem superfluous to discuss sufficient powers with this group. Yet, the most casual analysis of barriers that obstruct the progress of public health reveals the difficulty that arises from the lack of powers—legal or administrative. We shall continue to suffer from instability in our public health services as long as they are not based upon sufficient legal powers.

The necessity for adequate budgets in order to permit satisfactory service is self-evident. The situation in this field is anomalous. We know the cost of the technical procedures that will prevent unnecessary illness and premature death. The price is ridiculously low as compared with other public services. Yet, year after year the health services of this country, with few exceptions, are supported upon the poverty level. We have been too modest both in our claims as to the

worth of health services and in our demand for appropriate financial support. Adequate public health programs demand budgets commensurate with the health needs of the community.

Public health has become a specialized field. Its problems require a high degree of technical knowledge and skill for their successful solution. This important fact is being tardily recognized by those who control the organization and administration of health services. This is one of the explanations of the present unsatisfactory status of qualifications, tenure, and salaries of health workers. It has deterred many capable individuals from entering the field of public health.

The inclusion of intelligent public support as an essential to satisfactory public health service needs no justification. Unfortunately, we have not been able to command it to any great degree. All too frequently our support has been based more upon emotion than upon reason because we have concentrated our attention on health service to the individual and neglected to educate him and demand public support for such services. The results have been manifest in the inertia of the public while essential health services, in many places, were either abolished or reduced to a poverty level. We cannot hope to maintain a high degree of health service until we find the way to secure and maintain intelligent public support for our programs.

These, then, may be accepted as essential factors necessary if we are to provide adequate public health services for all of the population. Let us have them clearly in mind as we review briefly the present status of our facilities for and methods of distribution.

It is not my purpose to discuss details of present public health programs. I desire to review briefly the administrative mechanism we have developed for securing distribution of the benefits of modern scientific knowledge in the field of health. More particularly, my aim is to analyze these mechanisms for the purpose of determining where and how they may be improved. To this end we shall examine certain features of the official and voluntary health agencies and their relationships to the private practice of medicine.

An analysis of the present system of organization and administration of official health agencies reveals a wide variation in methods and effectiveness.

We find health functions of the federal government scattered through a considerable number of departments or bureaus. This system does not make for coördination since it depends too often for satisfactory relationships upon the spirit and personalities of the executives. Further, we find the usefulness of federal agencies frequently limited by lack of direct power within the states. One sees many instances where federal assistance properly applied would bring marked improvement in health services. Notwithstanding these handicaps, the assistance of federal agencies in solving state and local health problems has gradually improved under the guidance of skilled administrators. The question I desire to raise is what further steps are necessary in order to gain the highest potential benefits.

The status of state health organization and administration is of particular importance at this time, for if we are to be successful in securing a satisfactory widespread and permanent distribution of health services, it will require strong, well administered state health departments.

The variations in type of organization and administration of state health departments are characteristic of public health in the United States. Since each state is the sole judge of its own health needs, wide variations of

methods are inevitable. To a certain degree, this is desirable. The result, however, has been an uneven distribution of health services. We have not developed satisfactory standards for state health administration and there is but poor definition of the basic functions by statute.

As was indicated in the President's address, it is in local health administration we have made our most consistent and rapid advances. We have a well defined pattern of essential services required and standards by which such services can be evaluated. We know what they will accomplish and how much they will cost. Further, we have had numerous examples of how they can be successfully distributed to the ultimate consumer. We even have a few instances where they are so intelligently backed by public opinion that the depression did not interfere with them. The work of the Committee on Administrative Practice has been an important contributing factor.

Let us turn now to a brief consideration of the present status of three essential elements common to all units of health administration—legal powers, personnel, and budgets.

Variations in the laws under which official health services operate in the United States are of significance. An analysis of them reveals how far away we are from the attainment of a statutory basis that would be acceptable on a national scale.

Complete uniformity is neither necessary nor desirable. Sufficient power for properly controlling the organization of departments and securing effective carrying out of their programs is fundamental. I do not refer merely to enforcing of laws, though this is of importance. I do refer to the necessity for providing such powers as will reduce to a minimum the possibility of the domination of health services by political or other self-interest groups.

To amplify what Dr. Bishop has pointed out, methods of appointment, qualifications, and tenure of office of health personnel are far from satisfactory. The regular federal services are exceptions to this statement. While considerable progress has been made in placing certain grades of health workers under civil service, frequently important positions are filled without due regard for technical qualifications and without any guarantee of permanency of tenure. This will have an important influence upon the proposed expansion of official public health programs through federal aid.

It is difficult for me to speak temperately with reference to health budgets. Our record of inadequate health appropriations is a sad commentary upon our social judgment. Gradually health budgets were increased and services extended. The studies of Dublin, Shepard, Walker, and the Association tell the details of the story. They need not be recounted here. Reductions of budgets ranged from 5 per cent to the elimination of entire appropriations for some county units. In other places essential services were crippled or discontinued; all this with little or no protest from the public.

Such an episode almost compels us to seek and explanation of its causes. Certainly public health expenditures are not exorbitant when compared with appropriations for other public services. No informed person would say that the actual expenditures for health were excessive when compared with accepted standards for adequate services. The 90 cities entered in the Health Conservation Contest expended only $.75 per capita in 1933. These figures are for cities which have shown a real interest in public health. The average expenditure for county health services is approximately $.38 per capita while the state health appro-

priations averaged $.13. Dublin summed up the matter in his Presidential address:

> Altogether, we are spending something like 120 million dollars, or about $1 per capita for health work of all kinds whether administered by official or private agencies. This is the amount which in the hey-day of public expenditure was allocated for this important service. On its very face, this amount is only a fraction of what is needed. The modest estimates prepared by our Committee on Administrative Practice call for appropriations of $2.50 per capita if a well rounded program is to be maintained. In the counties, where health work is more difficult to conduct because of the distances to be covered, the expenditure to be adequate should be nearer $3 per capita. In other words, *our expenditures in the past have never reached more than from one-half to one-third of what we could spend profitably.* There has been no wild development and no tendency to grow too fast. Very few communities have ever spent enough to derive the great benefits that sanitary science and modern medicine have made possible. It is with meager amounts indeed, that genuine achievements in disease control have been accomplished. We are still very far from where we can *afford* to cut down on public health work.

Excessive public health expenditures—either actual or relative—cannot account for unusual and unwise reduction in health budgets during a period when adequate health service was most needed.

This brings me to a consideration of voluntary health agencies. The evolution of these organizations has been one of the striking characteristics of the American scene. We find ourselves with a multiplicity of national and local voluntary groups engaged in some aspect of health service. Their total budgets amount to large sums. They enlist the services and interest of great numbers of trained and untrained workers. Sometimes they fail to act in harmony with the official agency. The policies, objectives, and methods of these organizations are frequently criticised. The opinion is held by some that they have no further place in our public health program. It seems wise to discuss this opinion briefly.

Official agencies are not yet prepared with powers, personnel, or budgets to assume the useful public health functions now conducted or supported by these agencies. I am convinced that for many years to come, if not permanently, there is a useful and necessary function to be performed by independent, privately financed, properly conducted volunteer health agencies.

The protection of public health is essentially an official responsibility and we should encourage the adoption of and support for all essential health services under official responsibility as rapidly as possible. I am convinced there is much need for better coördination of some voluntary agencies with the official departments. These facts do not reduce the value of privately supported health organizations which have been and are being conducted in accordance with sound principles. In many places the volunteer agency is the only organized support of the health officials.

This statement is not intended as an approval for the indiscriminate organization and operation of national or local volunteer agencies. It would seem desirable for us to encourage the continued operation of those volunteer health agencies which are performing an essential service with proper relationships to the official agency. We might profitably bend our efforts toward securing better mechanisms for coördination of all health agencies and *seeing to it that they function.*

We come now to another important method for the distribution of health services. I refer to the private practice of medicine, specifically in its relationships to the programs of official and nonofficial health agencies. We

have in America the largest group of well trained medical men in the world; a system of hospitals and clinics second to none; and good educational facilities for undergraduate and postgraduate education in medicine.

In an era of organization and group activities, the age-old methods of individualistic practice of medicine are undergoing a severe test. The medical profession is making a valiant and highly commendable struggle to preserve all of the finest traditions and ideals of its honorable heritage. To these efforts we, as public health workers, pledge our heartiest support.

The growth and development of the American Medical Association is a splendid example of good organization. It has gradually expanded its program to meet the professional needs of its membership. This has made its present activity in the field of medical economics and public health relationships one of its primary functions at the present time. We are concerned particularly with the influence of medical-public health relations upon public health programs.

The diagnosis and treatment of disease have been the primary concern of the medical profession for centuries. Recently prevention has begun to occupy a more important place. Conversely, the public health profession has been primarily concerned with prevention and only incidentally with diagnosis and treatment. This situation has led inevitably to the time when the interests and activities of the two groups come into contact—either to merge or to conflict. This time has now arrived. The intelligent solution of this complicated and delicate issue is vital to both the professional groups and the public. The inherent objective of both groups is preservation and promotion of the health of individuals. The problem seems to be one of discovering better mechanisms for understanding and coöperation between professional organizations. I am convinced that they may be found.

This concludes a hurried and imperfect review of some essential factors necessary if we are to procure reasonably adequate health services. I trust it is understood that there is continued need for research leading to the discovery of improved methods of disease control and health promotion. I hope, however, that I have convinced you that our most important immediate task is the perfecting of methods for securing distribution of health services.

The time has arrived when we need a comprehensive, coherent national plan and policy for public health service. It should be sufficiently elastic to provide for a wide variation in the needs and conditions of the various geographic, political, and social units of our country. The public health workers, official and voluntary, are capable of devising such a plan and policy for discussion, modification, and final adoption. This is no short-time job, to be accomplished between two Annual Meetings of the Association. It demands a careful, painstaking review and evaluation of every aspect of health service. It calls for the wise use of our accumulated experience in every field of health. It needs to be a product of the best thinking of all professional groups. I make the proposal that we attempt to outline a coherent national health plan and policy with a full realization of its scope. I have considered the time needed and the work involved in bringing such a plan to its completion. Nevertheless, my earnest recommendation is that we make a beginning in order that we may develop an adequate integrated public health program for our nation.

The need for such a plan and policy is forcibly brought to our attention by the latest developments in our political life. We have devoted a special session

in this meeting to "Public Health in a Program of Social Security." Our retiring President has given us a thought provoking consideration of possibilities of the Social Security Act; and distinguished representatives of the federal services have presented tentative plans for its operation. These discussions signalize one of the most striking changes in public health history during the life of this Association.

The important task in public health administration of the immediate future will be the adjustment of federal, state, and local health relationships. The Social Security Act will make available greatly increased finances for public health service. Funds will be distributed on the well established principle of federal aid to states under definite conditions provided by the act.

The increased participation of the federal government in state and local programs requires careful adjustment. There should be no difficulty in establishing a proper relationship between the agencies that will permit ample local autonomy and, at the same time, assure sound, efficient local administration and programs. This presents a rare opportunity to raise the standards of public health practice as well as to extend such services.

We are assured that the keynote of the administration of the Security Act will be flexibility. This principle has demonstrated its worth in the hands of our federal agencies and some of our foundations. We look with confidence to the vision and wisdom of our official leaders in discharging their great responsibility, and pledge them our whole-hearted support.

Another important trend in public health administration is discernible in the rapidly changing socio-political picture. We refer to the inclusion of medical relief as a responsibility of the official health department. There is little disagreement as to the social duty for the care and medical treatment of the indigent or even those persons otherwise self-supporting who are unable to provide themselves with medical care. There is a question in the minds of highly qualified health administrators as to the wisdom of including this responsibility among the duties of the health department. In my opinion, we should give judicious consideration to both aspects of this problem.

One phase of the matter was ably presented by a distinguished state health officer. The point was stressed that "health departments are better fitted by training to administer medical care given at public expense than are the welfare departments." Prevention and cure were considered as a unit problem and proposals made that state and local health departments be given responsibility for both functions.

Another angle which merits equally careful consideration comes from an experienced and skillful local health officer. He says, "Close coöperation between health activities and charity is essential—but while the two functions are linked together, they still remain *two* functions, separate and distinct, and it behooves the health department which seeks to maintain its true entity to consider well how it may preserve this free from public confusion." He outlines what are now considered to be the essential services for which the health department is responsible. He expresses a concern that if the administration of medical relief is added to these responsibilities, it will increase the friction between medical and public health professions and relegate the preventive program to a secondary position. Each of these points of view represents the opinion of a capable public health leader. Together they raise an issue that will have much to do with the character of official health programs of the future.

We should weigh this matter care-

fully in order that our health programs shall produce the maximum good. It may be that the next stage of our social evolution will require the extension of public health programs into the field of medical care. Perhaps no one plan can meet the widely differing social, economic, and professional conditions of our country. I am convinced, however, that additions to our present public health programs should not deflect our attention from the primary responsibility for the control of communicable diseases, sanitation, infancy and maternity service, school hygiene programs, and public health education.

The reference above to medical care leads naturally to a matter which calls for immediate and definite consideration. I refer to proper relationships between the medical and public health professions. Social objectives of both groups are identical—the protection, maintenance, and promotion of health of every individual. Your speaker is one of those who believe that *there are no insoluble problems* of relationships between the two professional groups.

He is convinced that it is a matter of adequate, continuous contact between the leaders of these groups on all matters of policy and program. This could be accomplished by a reciprocal representation on the governing bodies of the two associations. This plan would result in an opportunity for mutual understanding and discussion of policies and plans of the organizations at a time when this would be most effective.

May I urge the medical and public health leaders—national, state, and local—to consider this matter and to approach its solution in a spirit in keeping with the traditions and ideals of both groups.

Health education is another problem that should occupy our attention in the immediate future. A frank evaluation of present methods and objectives in this area is clearly indicated. Health education has come to be a term with which to conjure. It is used indiscriminately to describe the activities of the quack, commercial interests, and the educator. Unfortunately the laity has great difficulty in separating the wheat from the chaff. This situation is one of the primary reasons why we do not secure intelligent, consistent public support for health programs.

It would be profitable to attempt bringing about a clarification of objectives and an integration of the activities of those legitimately engaged in health education programs. This should include official health and education departments, voluntary agencies, and the organized medical and dental professions. It has become increasingly apparent that no one of these groups can pursue its own projects independently.

With a common objective as a starting point, it would be possible for national, state, or local agencies to fuse their educational activities into a unified health education program. This would bring about greatly increased effectiveness for each participating agency without any loss of group integrity. Of even more importance, it would result inevitably in an increase of public confidence in the advice, proposals, and activities of all organizations.

It would appear that this is a particularly propitious time to attempt a coalition in this field.

It is my desire in the closing section of my remarks to call your attention to some of the ways in which the Association may contribute to a better distribution of health service. The first is searching for methods by which our Association can better serve the professional needs of all public health workers. This statement is not intended as an implied criticism of the

past efforts of either individuals or committees to provide such services. It is meant to express my conviction that the time has arrived once more for us to review the development of our organization as a guide for future action.

In 1929 we revised our Constitution. At that time we entrusted the major responsibilities for the direction and control of our affairs to a strong Executive Board of five standing committees. Five years of operation have demonstrated the essential soundness of this decision. Notwithstanding handicaps of readjustment and finances, we have made substantial progress in practically every division of our activities.

It would be a mistake, however, not to exercise continuous care and assure adequate, satisfactory representation of all groups on the governing body and committees. An Amendment to the By-laws was passed at this session to correct one such situation that has caused some dissatisfaction. A wider participation of our membership in the technical and administrative affairs of the Association would tend to strengthen the organization and train leaders for future responsibility.

We are glad to express gratification that it is possible to return to the practice of having a full-time Executive Secretary. The expanding interests of the Association require the undivided attention of a well qualified, and enthusiastic executive. In my opinion, the Executive Board has chosen such an individual in Dr. Reginald M. Atwater. We look forward to a period of increased activity under his administration.

In his presidential address in 1926, Winslow said: "The American Public Health Association has progressed almost as far as is possible along its present lines as a primarily national or rather international organization. Its future depends upon the development in every state of the Union and in every province or other corresponding administrative district of Canada and Cuba and Mexico of strong local branches bound to the parent Association by membership and joint collection of dues."

I can do no better than to adopt this statement as my own with the plea that we endeavor also to bind these regional organizations to the parent association with ties of professional service. Those of us who come from the West Coast realize keenly how necessary these ties are. The live interest of the parent Association in the Western Branch has created a feeling of solidarity in that region which is essential for the health and strength of our national organization. We hope that renewed efforts will be made to extend such regional and local organizations.

The Committee on Fellowship and Membership has a difficult assignment. Their report of another gain in membership this year is gratifying. A study of their activities shows that they have year after year appealed to all groups by every approved method for assistance in increasing our membership. Yet an undesirably large number of public health workers remain on the eligible list. The committee cannot do this job alone—it needs the *active* coöperation of every member of the Association.

The growing complexity of the Annual Meeting presents difficulties for the Committee on Meetings and Publications. The increased number of speakers, with demands for more, rather than fewer, scientific sessions has rendered simplification almost impossible. The committee is hard pressed to supply conveniently located meeting rooms. The selection of the Annual Meeting place grows more trying each year. This matter deserves

constructive thought and active coöperation of the sections with the committee. We must not discourage the healthy expansion of scientific activities. We should avoid the meetings becoming so unwieldy as to reduce their effectiveness or seriously limit the parts of the country in which the meeting can be held.

We celebrated the 15th birthday of the Committee on Administrative Practice at this session. We look to it for continued leadership in its vital task of raising the standards of public health practice and stimulating the extension of public health services.

The survey of the State of Massachusetts which they are to conduct with the coöperation of the Commonwealth Fund indicates that they are to study state public health practice. They will, no doubt, coöperate with the State and Provincial Health Authorities in the development of methods for the promotion of improved facilities for state health departments to meet their enlarged responsibilities, for, if national participation in regional health activities on an increased scale is to be effective, it will hinge upon the effectiveness of state health departments.

I heartily endorse Dr. Bishop's statement regarding the work on the Committee on Research and Standards.

Before concluding my remarks, I wish to consider with you the training of health personnel and their professional qualifications. A study of our present educational facilities indicates that they are inadequate and poorly distributed. We have a number of well equipped schools of public health and many effective courses for training specialized workers.

It would be wise to develop training centers on a regional basis. The courses offered should be planned to meet the needs of all grades of workers in every essential line of public health service. The levels of training should range from short courses to those leading to degrees or certificates with concentration in a special field of activity.

In planning these centers, use should be made wherever possible of the already established schools and the courses now being offered at various institutions. It is expected that the plans outlined by the Public Health Service under the Social Security Act will go far toward the solution of this problem.

Standards of professional qualifications for *specialist* in public health are needed. The Committee on Professional Education has been at work 3 years on this complex problem. Its activities have been conducted through sub-committees representing the various specialties. Agreement upon minimum educational standards has been reached in some groups. Others are only beginning discussions. In one instance, the problem is so complicated that further discussion is needed to reach a satisfactory solution.

We might consider the experiences of our medical and dental confrères in their struggles to raise professional levels. It proved necessary, and also wise, to erect their first technical standards upon the qualifications of those already engaged in practice on a creditable level. This might be a useful principle if applied to public health workers.

We should make every effort to raise the personal and professional qualifications for all health workers. It will require unusual wisdom, patience, and tolerance. I am convinced that we can and will use all of these. May I, therefore, cordially endorse the statement of the retiring President that the work of the Committee on Professional Education is of most immediate and pressing importance.

May I close with a personal word to the members of this Association who have honored me to serve as President

for the coming year. This responsibility is great—to the discharge of it, I shall give the full measure of my ability. I can find no words to express my gratitude equal to those of President Benjamin Lee in 1901 and echoed by Winslow in 1926:

"One who has devoted the best years of his life to the study and practice of preventive medicine . . . may be pardoned if he expresses the sentiment that having received the verdict of his long valued friends and deeply respected peers, the summit of his ambition has been attained and earth has no richer prize to offer him."

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# A Veterinary Centenarian and Discoverer

DR. GRIFFITH EVANS, of Bangor, North Wales, attained his hundredth birthday, August 7. While in the army veterinary corps in India he discovered the trypanosome of surra, a disease of horses, camels and cattle. In 1885 this protozoön was named *Trypanosoma Evansi*. He thus laid the foundation of protozoön pathology, in which the next discoverer was Bruce, who in 1894 found that tsetse fly disease of animals was due to another trypanosome. (*Trypanosoma Brucei*). In 1903 he and Nabarro found that the tsetse fly also was the carrier of trypanosomiasis. In a letter to the *Times*, Dr. Ivor J. Davies of Cardiff recalls a visit of Osler to that town. He asked, "Where does Griffith Evans live?" A reply not having been forthcoming, he said: "What! Don't you know the man who first saw a pathogenic trypanosome?" On his birthday Dr. Evans received in his bedroom a telegram of congratulation from the king and queen at the moment when Sir Frederick Hobday, principal of the Royal Veterinary College, presented a scroll stating that it is proposed to set up in the college a plaque recording the fact that Dr. Evans, the father of the veterinary profession, consented to lead the endowment movement.

Dr. Evans replied from his bed, to which he is confined by an accident, in a voice that could be heard outside the house. He discoursed for half an hour on scientific problems and mentioned that in his college days no microscopes were provided for students.—London Letter, *J.A.M.A.*, Sept. 14, 1935, p. 893.

# Fifteen Years of the Committee on Administrative Practice*

## I. The Initial Steps

LOUIS I. DUBLIN, PH.D., F.A.P.H.A. (*Life Member*)

*Third Vice-President and Statistician Metropolitan Life Insurance Company, New York, N. Y.*

IT is my pleasant duty to recall the initial steps which led to the organization of the Committee on Administrative Practice. I shall then turn the discussion over to Professor Winslow, who has been its guide and leader from the very beginning. He will tell you of the many activities developed by the committee. Finally, Dr. Rice, the Commissioner of Health of New York City, will attempt to evaluate some of the more important of these efforts to show in what ways they have served the public health movement during the last 15 years.

The earliest public health activities in America were extremely limited in scope. Up to the last decade of the 19th century, they consisted, for the most part, in the abatement of nuisances and the quarantine of epidemic diseases. A few weak attempts were made here and there to meet specific health problems, but very little was accomplished. In the 90's, Dr. Hermann M. Biggs of New York brought the bacteriological laboratory into the picture and largely as a result, the scope of the health movement broadened by leaps and bounds. The attempt to control tuberculosis, the infectious diseases of children, and the venereal diseases were the immediate fruits. Later, the promotion of child hygiene and the educational work of the public health nurse extended the old-fashioned health department into an active and obviously useful agency.

By 1920, it seemed fairly desirable to take account of stock and, perhaps even more important, to consolidate the gains that had been achieved. On every hand, enthusiasts in the special fields of health promotion were urging the importance of their particular part of the program. In each city, certain of these special fields had been developed, some of them to a high degree, while other possible activities were wholly or almost wholly neglected. The conscientious health officer was calling for guidance. What should he undertake and to what extent? How could the usually limited funds at his disposal be most advantageously used? These were some of the questions which health officers were asking themselves everywhere.

Dr. Chapin of Providence had crystallized this point of view and questioned various activities which were passing for approved service in those days. He queried, especially, those practices which concerned the abate-

* Read at a Special Session of the American Public Health Association at the Sixty-fourth Annual Meeting in Milwaukee, Wis., October 8, 1935.

ment of nuisances and a number of others which he thought were hardly within the scope of the public health officer. In 1915, in his study of state health departments, he showed for the first time how a quantitative evaluation of health service could be made. Dr. Chapin's work and the discussions that followed left a very definite impression that this was a good time to bring together the facts with regard to the current practices in American municipal health departments. It was accordingly, in 1920, that the Committee on Municipal Health Department Practice was appointed by the American Public Health Association to conduct such studies in the field of municipal service, very much as Dr. Chapin had shown in connection with the state work.

As far back as 1916, we, in the Metropolitan Life Insurance Company, had become greatly interested in the character of the organization of municipal health departments. The company, through its Welfare Division, under Dr. Frankel, had committed itself to a program of coöperation with health departments all over the country. The company had organized an extensive nursing service for the care of its millions of sick policy holders; it offered health officers large quantities of health literature for distribution and, perhaps most important, it agreed to employ its agency force and its other instrumentalities to arouse the interest of the policy holders in plans which the local health officer might have to extend his service. Under these circumstances, it seemed to us very desirable to get a glimpse of the status of health work the country over. Some cities were obviously further advanced than others and there was a great variety of procedures. Could the general level of health work be raised by making available to all health officers the facts with regard to the most approved practices as demonstrated in the leading communities?

In February, 1916, a circular letter was sent out to the Metropolitan managers in the various parts of the country urging them to associate themselves with the plans of health officers and to find out for themselves the essential facts with regard to the work which was going on in their health departments. A brief blank was supplied for the record of their observations. A large volume of material came in indicating a great variety of conditions and of organization. In 1919, a more detailed and definite questionnaire was sent out in the hope that more useful information concerning local public health work could be obtained. As this inquiry progressed, it was discovered that some of the information would have to be supplied by the health officers themselves. After some experimentation, it was evident that we must give up the idea of relying on our managers to obtain this information, and the attention and coöperation of the health officers themselves must be secured. In April, 1920, a schedule was prepared which it was planned to send to the health officers of the 250 largest American cities asking them to supply the basic facts with regard to the organization and services rendered by their departments. They were also asked to state their more urgent needs and their plans for future expansion and particularly what the company could do to aid them in their local efforts. Before this questionnaire was actually distributed, it seemed desirable to try it out on a few of the more critical sanitarians of the country such as, Professor C.-E. A. Winslow, Dr. Charles V. Chapin, Dr. Donald B. Armstrong, Dr. Allan McLaughlin and others.

On May 17, 1920, I sent to Dr. Lee K. Frankel a report on the conferences with the sanitarians to whom the ques-

tionnaire had been sent. They were unanimous that the proposed investigation was timely and that there were great possibilities in the program, if properly conducted. There was considerable doubt, however, as to the ability of the company to gather the information directly by the questionnaire method. Professor Winslow was especially skeptical. In order to make the answers worth while, the questions had to be specific and technical in character. Because of the wide scope of the inquiry, the questionnaire must be lengthy and would involve a great deal of labor on the part of the health officers. There was virtual agreement among the conferees that the best method would be to have the actual inquiry conducted by trained persons working under the auspices of the American Public Health Association and with the approval of the state boards of health. Local health officers would coöperate with a representative of the state department where they might refuse information to the Metropolitan. It was, therefore, suggested that the company ask the Section on Public Health Administration of the American Public Health Association to appoint a special committee to take charge of the work, and especially to make the necessary contacts with the state and local health officers. The funds required for the actual canvassing were to be supplied by the company. Professor Winslow suggested that $5,000 would see the work through, and this amount was appropriated.

In this way was initiated the work of the Committee on Administrative Practice. It was very clear from the outset that the committee must have Professor Winslow as its chairman. He very graciously accepted that responsibility. As you all know, he has for 15 years, except during his term as president when Haven Emerson served as chairman, carried this burden with tremendous enthusiasm, initiative, and wisdom. He was associated at first with Dr. Charles V. Chapin, Dr. Wade H. Frost, and myself acting as Secretary. In the next few months, the committee was enlarged to include Dr. Donald B. Armstrong, Dr. Haven Emerson, Dr. Allan W. Freeman, and Dr. Lewis R. Thompson of the U. S. Public Health Service. Later, as the committee formulated its plans and began to function, its membership was extended to include a number of active health officers. To make sure that our plans were in keeping with the practical needs of the men on the firing line, many conferences were held with health officers all over the country and their active coöperation sought.

Never was a more congenial group of men gathered to carry on a task and never did they work more actively and intelligently to further their objective. The questionnaire was quickly beaten into shape. Space does not permit me to present this historic record form but I am filing it in the archives of the Association where it may later be examined by interested students. It consisted of 24 pages, each 12″ x 18″, and covered what we then believed to be the main points in the organization of municipal health departments. The problem of gathering the information from the large cities of the country was not easy to solve. It was essential that the information should in all cases be obtained through the visit of a personal representative of the committee to each city. Otherwise, many of the questions would have remained unanswered; others would have been misunderstood and the results from the various cities would have been vitiated through the lack of comparability or reliability. It was, therefore, decided that the surveys should be conducted by a small number of investigators acting for the committee, each using

the schedule in the same way and following certain rules and interpretations of the items as agreed upon. Each member of the committee undertook to be responsible for a group of cities in his immediate vicinity. We were extremely fortunate in obtaining the active coöperation of Surgeon-General Hugh S. Cumming of the U. S. Public Health Service, who generously assigned Dr. Lewis R. Thompson to the committee for a period of 10 weeks. Dr. Thompson surveyed 16 cities. In addition, the Surgeon-General directed 5 members of his staff located in various parts of the country to coöperate with the committee in completing the surveys of 9 cities in their immediate vicinities. The American Red Cross helped us by placing Homer N. Calver at the committee's disposal for the survey of 5 cities. I well remember canvassing the situation personally in the 8 cities on the Pacific Coast. Mr. Tolman, the Secretary, covered cities in the northeastern part of the country. Altogether, we received returns for 83 cities with populations over 100,000. This material became the source for a wealth of publications which soon began to appear under the imprint of the committee.

The tabulation of the material was an extensive task and W. T. Fales, then a student under Professor Wade H. Frost at Johns Hopkins, and Professor Ira V. Hiscock, associated with Professor C.-E. A. Winslow, were extremely helpful in tabulating the data and in digesting the material. At the Annual Meeting of the Association in New York City in November, 1921, the committee presented its first report, being a summary of its findings under 18 different main divisions. It appeared in the January, 1922, number of the *American Journal of Public Health*, and will always remain a landmark in the history of the Committee on Administrative Practice. It was this material which later, much elaborated, resulted in *Bulletin No. 136*, published by the U. S. Public Health Service and entitled "Report of the Committee on Municipal Health Department Practices of the American Public Health Association."

This *Bulletin*, published in 1923, contained 468 pages and was divided in three main sections. The first prepared under the editorial supervision of Dr. Allen W. Freeman of Johns Hopkins, consisted of 18 chapters, each one on a special aspect of health department organization. The several chapters were prepared by members of the committee and their associates. Dr. Freeman wrote the important chapters on The Health Board and the Health Officer, Control of Communicable Diseases, Water Supplies, and Sewage and Sewage Disposal. Professor Hiscock summarized the findings on Infant Hygiene, School Health Supervision, Public Health Laboratories, Milk Inspections, Food and Drug Inspections, and Sanitary Inspection and Sanitation. Professor Winslow reported on Tuberculosis, and Public Health Nursing. Mr. Fales analyzed the Expenditures of Health Departments, and Mary Augusta Clark of the American Social Hygiene Association obliged with a chapter on Venereal Disease Control. Finally, I had the pleasure of contributing a summary of the procedures in Vital Statistics, and a member of my staff, Miss George Anundsen prepared a chapter on Public Health Education.

The second section was prepared by Professor Winslow and Dr. H. I. Harris who outlined An Ideal Health Department for a City of 100,000 Population. This ideal organization purported to "represent the best practice of the day in each of the various lines of health department work as observed in some one or more of the cities studied." It was in no sense a

visionary project, but was based entirely on the standards employed by the leading cities in each particular phase of health work. No form of procedure was suggested which had not proved practicable in some city under actual working conditions. This hypothetical health department, therefore, furnished an excellent measuring rod for the third section in which Dr. Emerson did an especially interesting piece of work in analyzing the individual practices of each one of the 83 cities studied.

The work of the committee was now fairly launched. It had proceeded far enough to clarify its program by announcing in 1924 the following three specific objectives: (1) the study of public health procedure; (2) the standardization of public health procedure, and (3) the presentation of the studies and standards to those members of the Association who may find them useful. I shall leave it to Professor Winslow to develop the work for the committee from this point. I desire only to say that what followed has become indelibly associated with the history of the Association during the last 11 or 12 years and with the extraordinary progress that has taken place in public health activity in the United States during this interim.

There are, however, one or two minor phases of the work of the committee which I think it is proper that I should consider briefly. The first refers to the personalities who have been associated with the committee during its history. We were extremely fortunate in bringing together a group of men who were congenial to one another and who were ready to give of their very best, irrespective of the time and effort which were called for. I need not sing the praises of Professor Winslow. His service on the committee speaks for him. It is a pleasure to record the extremely useful work of Dr. Charles V. Chapin during those early formative years. His knowledge of health practices, his point of view, his critical acumen in revising the schedules, guided us away from a great many errors. Dr. Allen W. Freeman was a mountain of strength. He made the first major publication possible. Dr. Haven Emerson was always ready to help with his fertile imagination outlining new activities and new ways of making the work of the committee practically useful. It is impossible, of course, to list all of those who were associated with us in the initial group. I refer to these members because they have continued to serve the committee from the very beginning. I hope the other members who have worked equally hard will not take it amiss if I do not refer to their special labors, except that I must single out the contribution of Dr. George W. Palmer, who was largely responsible for the present form of the city appraisal form. In all, there have been 36 members of the committee since its beginning. Ten of them have served at least 10 years. Seventeen have served 5 or more years. Nine of our committee members have served as President of the Association and one of them is now President.

We were also extremely fortunate in our choice of Field Secretary or Executive Officer. The first of these was Mayo Tolman, a breezy picturesque character, who first set the work of the committee in motion. He had been a student of Sedgwick's and was a veritable dynamo of energy. He did an excellent job in drawing up the first schedule and in keeping hold of the many details of the first survey as it ran through the hands of many workers.

He was succeeded by a man of a very different type, no one less than ex-President Dr. Watson S. Rankin, of North Carolina. Dr. Rankin threw himself into this effort with enormous energy and with years of experience

behind him. For years he had been thinking of establishing norms by means of which we could measure the relative values of particular types of health work. His main contribution was the creation of the appraisal form which has had such a remarkable influence on the work of the committee. It was under his administration also that the schedule received a thorough revision, largely through the efforts of Dr. George W. Palmer, and became much more adapted to its purpose. Dr. Rankin's greatest contribution, however, was his ability to win the confidence of the health officers of the country and to obtain their acceptance of the committee's plan of evaluation and of standardization of practice, two factors very essential to the success of the future work of the committee. He resigned in 1925 to become Director of the Hospital and Orphan Section of the Duke Foundation, Charlotte, N. C.

He was succeeded by Dr. W. Frank Walker, who had gained wide experience through the survey of the American Child Health Association and in association with Dr. Henry F. Vaughan in Detroit. It will be quite impossible to credit Dr. Walker with all of the good works for which he was responsible. It was in his administration that the survey work of the committee was inaugurated. The time had arrived when individual cities wishing to go deeper into their health organization than the mere cataloguing of information turned to the Association and the committee for intensive surveys. Dr. Walker conducted these on a large scale and established an activity which has become an important one in the life of the Association. He also launched the City Health Conservation Contest. This was nothing short of a stroke of genius because it was through these contests that the possibilities of the schedule and the appraisal form could best be realized. The competition set up through hundreds of cities joining together in the Contest has resulted in immeasurably raising the standards of public health work in the cities of the country. Later, the City Contest resulted in the organization of the Rural and County Contests, generously supported by the Kellogg Foundation. The Association is under tremendous debt to Dr. Walker for these many services. He resigned in 1931 to become Director of Public Health Studies of the Commonwealth Fund, and was succeeded by Dr. Carl E. Buck. It is hardly necessary for me to evaluate the services that have been and are being rendered by Dr. Buck and his staff. He is a worthy successor to the splendid men who have preceded him in this position.

Finally, it is my pleasure to refer briefly to the financing of the committee's work. It will be remembered that the first contribution was made by the Metropolitan in 1920. The company has continued to be interested in the work ever since. By 1927, we had succeeded in arousing the interest of other life insurance organizations which in more recent years have helped to finance the Health Conservation Contests. In 1925, the Milbank Memorial Fund contributed $10,000 and in 5 years made available a total of $40,000. The Commonwealth Fund made its first contribution toward the work of the committee in 1928 and has since then been a continuous and generous contributor, its total financial help amounting to $135,600. Most of this large contribution was expended in conducting the work of the Sub-Committee on Evaluation of Administrative Practices. Altogether more than half a million dollars has been expended by the committee during the 15 years of its history. Not a small part ($128,000) of this total has been actually earned in services rendered by

the committee and its members in making surveys, and through consultation service in carrying the point of view of the committee into practical effect in individual states and cities. Altogether, there is in the financial history of the committee an excellent example of what can be done when a good idea works through channels of practical and trained men. I have no doubt at all that for every dollar spent by the committee, a great many more dollars have been loosened from municipal and state sources to improve public health work in the United States not only temporarily but permanently.

In closing, it has been one of the great satisfactions of my life to have been instrumental in the organization of the committee, in helping to make possible its financial support, and in playing some part in the development of its program. The work began innocently enough through an interest arising in my office. The developments which followed have helped to make my work—and I am confident the work of hundreds of others—in the field of public health more significant and valuable.

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# The Hall of Fame, New York University

EARLY in November, the 1935 voting took place by which selections were made to fill additional niches in the Hall of Fame at New York University. There are spaces for 150 busts and of these 69 are now filled. The new election included William Penn, Simon Newcomb, and Grover Cleveland.

Most interesting to health workers is the fact that the highest name on the list of those who fell short of the necessary three-fifths vote of the 101 electors was none other than our own Dr. Walter Reed, the conqueror of yellow fever. He received 57 votes—61 would have elected him.

The history of these elections shows that most of the names have appeared in several lists before they were finally elected and it would seem quite probable that Dr. Reed may be elected at some time in the not far distant future. Of the 72 names already on the list, it is said that 13 are statesmen, 16 are authors, 5 are teachers and theologians, and 5 are educators. Seven are women. Most of the other names are men of letters. Nominees are not eligible for consideration until they have been dead for 25 years.

# Fifteen Years of the Committee on Administrative Practice*

## II. The Evolution of the Program

C.-E. A. WINSLOW, DR.P.H., F.A.P.H.A. (*Life Member*)
*Professor of Public Health, Yale School of Medicine, Yale University, New Haven, Conn.*

THE Preacher long ago warned the people of Israel that "there is no new thing under the sun"; and the attempt to standardize health practice is no exception to the rule.

Haven Emerson, in his Sedgwick Memorial Lecture on Public Health Diagnosis traces the germ of the idea back to the *Doomsday Book* of William the Conqueror in 1086. Edwin Chadwick's report on *Sanitary Condition of the Labouring Population of Great Britain* (1842), Lemuel Shattuck's *Report of the Sanitary Commission of Massachusetts* (1850), and the report of the Citizens' Association of New York, *Sanitary Condition of the City* (1865) were more directly in our line of descent.

These early surveys were, however, primarily concerned with the sanitation of the physical environment rather than with administrative health practice. For the first real attempt to make a comprehensive evaluation of all the health aspects of community life in definite and detailed form, we must turn to the records of our own organization. At the Philadelphia meeting of the American Public Health Association in 1874, a committee of 24 was appointed "to prepare schedules for the purpose of collecting information with regard to the present condition of public hygiene in the principal towns and cities of the United States, and the laws and regulations, state and municipal, relating to the same."

I have a photostat copy of the survey schedule prepared by John S. Billings (President of the Association in 1880) for this committee,[1] and it is one of the most interesting documents in the history of public health. It contains 411 specific questions under the following 20 headings: Location, Population and Climate; Topography and Geology; Water Supply; Drainage and Sewerage; Streets and Public Grounds; Habitations; Gas and Lighting; Garbage and Excreta; Markets; Slaughter Houses and Abattoirs; Manufactories (and Trades); Public School Buildings; Hospitals and Public Charities; Police and Prisons; Fire Establishments, Alarms, Engines, etc.; Cemeteries and Burials; Public Health Laws, Regulations, Officials-Municipal; Registration and Statistics of Diseases; Quarantine.

The schedule for Hospitals and Public Charities is a forerunner of the studies carried on so effectively by the American Hospital Association; and

* Read at a Special Session of the American Public Health Association at the Sixty-fourth Annual Meeting in Milwaukee, Wis., October 8, 1935.

the last three of the schedules listed above are precisely in the line of the work of the Committee on Administrative Practice. They cover the constitution, personnel, salaries and powers of boards of health, number and qualifications of staff, quarantine practice, annual reports, registration of vital statistics, mortality from important diseases and at important age periods.

This was truly an amazing document. It was, however, too far ahead of the times for widespread application. Forty years must pass before this germinal concept came to actual fruition, under the influence of another great pioneer, Charles V. Chapin of Providence. In one after another of his addresses he emphasized the need for quantitative evaluation of health practices.[2] In 1915 he showed for the first time in his study of state health departments how such an evaluation could be made.[3] Five years later, in 1920, the Committee on Municipal Health Department Practice was appointed by the American Public Health Association as a result of those conversations between members of the Association and officials of the Metropolitan Life Insurance Company which Dr. Dublin has described.

The general objectives of the committee were stated as follows in its first annual report (1921).[4]

> The need of authentic information on the practice of municipal health departments of American cities has long been recognized by all engaged in public health work. It is generally known that a great variety of procedures are in effect; that the organization of the health departments differs in different communities; that the amounts spent per capita for any branch of health service vary considerably and that, in other respects, few standards are available to health officers who would pattern their departments after those which predominate in American practice or achieve most satisfactory results. It was thought that the collection of data as to the current practice of large municipal health departments would repay the effort and that perhaps, out of such an investigation it would be possible to discover the best procedures and to forward the movement for the simplification and standardization of health department practice in our cities.

A year later, in the fall of 1922 the A.P.H.A. at its Cleveland meeting adopted the report of its Committee on Reorganization which emphasized this problem as a primary function of the Association itself in the following paragraphs:

> The objectives of the Association should be the preparation, study, standardization, and presentation of scientific public health procedures, the best method by which such knowledge can be given to the public, and the expression to the public of professional opinion in regard to such procedures.

Later on under Section C, *Information File*, the report recommends

> . . . that there be maintained at the central office of the Association such records as are obtainable and can be kept current with regard to the organization, expenses, procedures and results of public health practice in organized health departments in countries represented in our membership.

In 1923 the committee through the assistance of the U. S. Public Health Service, completed—as Dr. Dublin has described—its first important study, a survey of health practice in the 83 largest cities of the United States. In this year, too, Dr. W. S. Rankin obtained leave of absence from the State of North Carolina to serve as its first full-time Field Secretary.

By 1924, the committee had proceeded far enough with its work to clarify its program by announcing the following three specific objectives:

1. The study of public health procedure
2. The standardization of public health procedure
3. The presentation of the studies and standards to those members of the Association who may find them useful.

In 1923 and 1924, the committee attacked its second major objective, the preparation of an appraisal form for

the measurement of actual administrative achievement by a quantitative objective scoring procedure—again following the lead provided by Dr. Chapin in 1915.

Early in its career (1923) the committee had suggested that its studies should be extended to Canada, Cuba, and Mexico and to states, counties, and small municipalities as well as to large cities. In 1925 its name was changed from Committee on Municipal Health Department Practice to Committee on Administrative Practice in order to indicate its potential wider scope. The Milbank Memorial Fund made its first grant to the committee in this year; the first city *Appraisal Form* was completed; and Dr. W. F. Walker succeeded Dr. Rankin as Field Director.

For the year 1926, Dr. Haven Emerson served as Chairman of the committee and its first active subcommittees were organized, dealing with County Health Practice, Administrative Record Forms, and Analysis of Health Department Functions and Results. In the fall of this year, at the Buffalo meeting, the committee was reorganized and placed on a permanent basis with a membership of 16 made up as follows: 12 members at large, appointed for 4 year terms, the terms of 3 members expiring each year; the 3 officers of the Health Officers Section (later changed to 3 representatives appointed by that Section); and the Executive Secretary of the Association. This change essentially involved the recognition of the committee as the "technical service division" of the Association.

In 1927 the committee published *Community Health Organization,* under the editorship of Professor I. V. Hiscock, which was its first comprehensive effort to present the results of its studies in the form of a complete program of standard community health service. In 1928 the Commonwealth Fund joined the list of our generous supporters by making a grant for studies of 3 state health departments and of rural county services.

In 1929, was held the first Health Conservation Contest, sponsored by the U. S. Chamber of Commerce and actually conducted under the technical guidance of the committee, with funds provided by a group of life insurance companies. This step (although foreshadowed by certain earlier efforts of the committee) marked its first comprehensive effort along a new line. Nearly 10 years had been spent in collecting data, in formulating standards, and devising methods of appraisal. The time was at last ripe for using these technics in an organized effort to raise the general level of health practice throughout the country.

In 1930, the committee undertook still another task, the evaluation of individual health procedures with a view to improving the details of health practice. At first we could only establish standards on the basis of group judgment, and for some time to come most of our practice must rest upon this basis. Slowly but surely, however, we hope to remould group judgment by the test of accurate scientific analysis of methods and results.

In 1931, Dr. Carl E. Buck replaced Dr. Walker as Field Director. In 1933 our first comprehensive survey of rural health service was issued under the editorship of Dr. A. W. Freeman; and in 1934, the Health Conservation Contest idea was applied to county health departments under a grant from the W. K. Kellogg Foundation.

Such have been the high points in the chronological history of the Committee on Administrative Practice. It may be noted that its activities group themselves in logical order under 5 main heads: (1) collection of data as to actual administrative practice, (2)

formulation of a typical or normal program of adequate community health service based on those data, (3) the preparation of an appraisal form by which actual health services in a given community may be objectively measured, (4) the making available of the knowledge and experience of the committee to health officers in such a way as to promote sound local programs and, finally, (5) the securing of public backing for such programs, by using the standards and the comparative ratings at our disposal to stimulate emulation as between various local areas.

First of all, it was necessary to obtain a clear idea as to the actual practice of American communities in the field of health organization. Such a picture, as it related to state health departments, Dr. Chapin had given us in 1915. Dr. Dublin has shown how—with funds provided by the Metropolitan Life Insurance Company and with the generous coöperation of the U. S. Public Health Service—we prepared and published our first comprehensive survey of municipal health practice.[5] This has been so fruitful in its results that it is now a little difficult to visualize the obscurity in which we labored before information of this kind was available. The younger health officers can scarcely imagine what it meant to develop a health program with no knowledge whatever of practice elsewhere—except such as we might pick up in conversation at meetings and by visiting or corresponding with neighboring departments.

*Bulletin 136* proved so valuable that the American Child Health Association almost at once began a similar study of services in 86 smaller cities (40,000 to 70,000) which was published in 1925.[6] Our own committee, again in coöperation with the U. S. Public Health Service, resurveyed the 83 cities studied in 1920 as of the year 1923 and extended the limits of population down to the 70,000 figure which was the upper limit of the A.C.H.A. study. This second survey of 100 large cities was published as *Bulletin 164* of the Public Health Service in 1926.[7] Thus 10 years ago, we had already gained a reasonably clear picture of actual administrative practice in the 186 cities of the United States which had populations of over 30,000 in 1920.

In 1927, the International Health Division of the Rockefeller Foundation resurveyed the state health departments for the Conference on State and Provincial Health Authorities[8] and finally 2 years ago, our own committee presented (under the editorship of Dr. Allen W. Freeman and with Dr. Crittenden as principal field surveyor) the results of a comprehensive survey of rural service.[9] This investigation (generously financed by the Commonwealth Fund) was made under the direction of a sub-committee headed by Dr. E. L. Bishop and involved two separate lines of approach. Carefully prepared questionnaires covering the major items of information desired were sent out to all full-time county health departments and returns were actually received and tabulated for 337 such counties. This general information was supplemented by an intensive survey of 46 counties in 28 states and 2 Canadian provinces. These counties were selected to represent various geographical areas of varying economic status and to include both organized counties (27) with full-time health officers, and unorganized counties (19) representative of the four-fifths of our rural counties without full-time health service. By combining the information obtained in these two fashions a remarkably clear picture (and a very challenging one) was obtained of the achievements made, and of the disheartening gaps which still

remain unfilled. This report was another pioneer accomplishment of major import to the cause of public helath—comparable only with the first city survey begun in 1920.

The Committee on Administrative Practice feels that the time is more than ripe for a second re-survey of state health departments, and hopes to be able soon to undertake that task if the Conference of State and Provincial Health Authorities should desire it. At some future date, a re-survey of rural health service will no doubt be desirable. In the municipal field, however, it seems probable that the stage of comprehensive and nation-wide surveys may perhaps have passed, at least as far as purely quantitative studies are concerned.

What is needed now in the municipal health field is (1) up-to-date information as to current changes, in the form of general trends such as those concerning budget allotments and personnel; (2) continuing review of new administrative procedures in special fields; and, particularly, extensive as well as intensive studies of particular procedures with a critical analysis of costs and of results actually attained. The first sort of information can be obtained by the questionnaire method, the second by visits to particular cities where special advances have been made.

In its 1923 report, the Committee on Administrative Practice recognized the need for "a central clearing house for current information in regard to health department practice." It seemed to the committee that "the natural and logical first step was to provide for the keeping up-to-date of the information already secured at considerable cost in regard to the large cities of the United States." The U. S. Public Health Service was, in our judgment "the logical body to lead in this work in view of its general program and policies and in view of the service which it has rendered to so many individual communities in the line of counsel as to administrative health procedure." The matter was therefore presented to Surgeon-General Hugh S. Cumming and, to our great gratification, he agreed to establish within the U. S. Public Health Service an office of Administrative Health Practice, under the direction of Dr. Paul Preble.

The office of Administrative Health Practice has proved of the greatest value but during the past few years the need has become increasingly apparent for somewhat more intensive efforts than have heretofore been possible along the lines of continuing analyses of current progress. The information available to us in the returns made by cities competing in the Health Conservation Contest seemed of potential value in this connection. In 1932, therefore, the C.A.P. created a new sub-committee on Current Health Department Practices under the chairmanship of Dr. J. W. Mountin. Dr. Mountin had succeeded Dr. Preble as chief of the Division of Administrative Practice of the U. S. Public Health Service. Recent analyses made by this committee of health department budgets and personnel in the depression have been published in the *American Journal of Public Health* during the current year and furnish powerful arguments for checking and compensating for the serious inroads which have been made upon the health defenses of the nation.

The second task of the committee was to utilize the material assembled through our surveys in the form of a typical community health program which might be set up as a norm or as a general guide to be used by any community which aspired to provide really adequate health protection for its citizens. It required some courage in 1920 to attempt such a task and I well remember the trepidation with

which we approached it. In our first important contribution, however, the 1923 report (*Public Health Bulletin 136*) we included a chapter on *An Ideal Health Department for a City of 100,000 Population,* prepared by Dr. H. I. Harris and the writer.[10] This was, so far as I am aware, the first attempt ever made to formulate a standard community program. As our studies advanced, it seemed desirable to expand this program and to modify it in the light of the new information at our disposal, and Professor Ira V. Hiscock was asked to prepare a new draft of the standard program. This was issued in 1927.[11] In 1932 a second revision of this report on *Community Health Organization* was published, again under the editorship of Professor Hiscock.[12] Its sound analysis of administrative policy and the philosophy of broad social relationships involved make this, in my judgment, a document of the very first importance.

The somewhat adventurous policy involved in the attempt to formulate in detail an adequate well balanced community health program has been more than justified by experience. It has been astonishing even to those of us who have been most hopeful to see how completely the scheme of ideal community health organization has actually fitted the facts. It is no static program, for new opportunities for productive health service are continually opening before us; and successive editions of the outline must continue to reflect such advances. At a given moment, however, the actual practice of the most advanced cities corresponds in striking degree to the standard program; and when we began to apply it to the handful of rural areas with really adequate health service the correspondence proved equally close. One of the most valuable features of *Community Health Organization* lies in its estimates of the personnel and budget necessary for satisfactory service. Here, too, experience shows close conformity between theoretical computation and actual results. Again and again, we have found in comparing a given city with the general scheme that precisely those activities which had less than the estimated budget allotment were the activities which in practice fell short of reasonable attainment. It is, in large part, thanks to this document that we can stand with complete confidence on the requirement of $2 per capita (from official and voluntary agencies combined) as essential for the support of an adequate community health program—in rural as well as urban areas.

A second phase of this general problem of developing sound health practice has been concerned with the working out of standards for certain details of health department procedure, as distinguished from the broad general program as a whole. This function has been largely performed by a remarkably active and devoted series of subcommittees which include many coöpted members from outside the C.A.P. itself. The first of these sub-committees were organized in 1926. They include at present the following fields of work: Record Forms, for many years under the chairmanship of Dr. George C. Ruhland, recently succeeded by Dr. George T. Palmer; Organized Care of the Sick, under the chairmanship of Dr. Michael M. Davis; Manual of Public Health Administration, under the chairmanship of Dr. Henry F. Vaughan; Annual City Health Department Reports, originally headed by Dr. C. H. Jones, now under the chairmanship of Dr. John L. Rice; Public Health Nursing under the chairmanship of Sophie C. Nelson; and Relationship of Social Workers to Public Health, under the chairmanship of Dr. W. Frank Walker. All of these committees have been

active and have published reports at varying intervals. The achievements of the sub-committee on Record Forms have been, perhaps, particularly notable and have recently borne fruit in a Manual on Record Forms which has just been completed and is ready for publication.

For the most part, our standard procedures have rested on the empirical basis of practice, as exemplified in the actual work of health departments. We have long felt, however, that our ultimate goal must be to substitute for empirical group judgment more exact knowledge based on the statistical analysis of results actually achieved. To this end we organized in 1930 a new sub-committee on Evaluation of Administrative Practices under the chairmanship of Dr. Haven Emerson, and with financial support from the Commonwealth Fund. The aim of this committee is to take up one by one certain definite and specific procedures, to analyze them in detail and to measure the results in preventing morbidity and mortality actually attained by particular methods of administrative control. The task is an extremely difficult one and progress is necessarily very slow. Already, however, four contributions of substantial importance have been made in this field. They have dealt, respectively, with the comparative merits of various procedures for active immunization against diphtheria (Dr. William H. Park); with isolation procedures for the control of scarlet fever (Dr. John E. Gordon); with the effect of immunization of certain specific age groups in the control of diphtheria (Dr. Edward S. Godfrey); and with the effect of varying types and amounts of prenatal care upon maternal and infant mortality (Drs. M. Tyler, Harold H. Walker and John H. Watkins).

Additional studies are now under way with regard to methods used in the control of infant mortality and to isolation procedures for the control of measles and whooping cough. We believe that, in spite of their inherent difficulty, studies of this kind furnish the only assurance of developing our public health practice on a really sound and scientific basis. We hope and trust that resources may be found for continuing such investigations in the future.

The third major task of the committee was to devise a method by which the health officer could appraise the results actually attained by his own program and determine how far it corresponded to the best current practice and how far—and in what particular respects—it fell short of such practice. If the preparation of a normative community health program called for a certain temerity, the attempt to formulate a definite scheme of appraisal was even more hazardous. Could any plan be devised that would be reasonably applicable to various communities with their widely differing problems? Would not the attempt to formulate a score card or measuring rod for so complex a thing as a community health program lead to a sterile mechanism unrelated to reality? Would not any possible scheme work hardship on certain health departments and lead to unmerited criticism? If it did gain acceptance, would it not tend to standardize an incomplete program and prevent progress? I can scarcely make my hearers realize how grave these objections seemed to us; but I can perhaps illustrate our state of mind by recalling that one of the most valued members of the committee resigned rather than participate in so unscientific a procedure.

Nevertheless, the committee as a whole felt that the possible results were worth all the risks; and we decided to go ahead. In April, 1923, Dr. Chapin prepared the first draft of

an appraisal form "to provide in the first place for an evaluation of the relative importance of various lines of public health activity, and in the second place for an estimate of the service actually rendered along each line of activity." During the next year, 1924, Dr. Rankin, as Field Secretary of the committee, devoted a large share of his time to the problem. Fortunately, the American Child Health Association, as a result of its study of the 86 smaller cities had realized the same need for an appraisal form. The two organizations recognized the importance of coöperation and, in a conference lasting about a week, the two independent forms were consolidated into one. The plan was presented for counsel and advice to the New England Health Institute and to groups of health officers in Ohio and Michigan. The various national health organizations were consulted with regard to the respective sections in which they were particularly interested. In August, representatives of the New England, Ohio, and Michigan health officers spent 4 days in revising the document, and took it home for actual use in the field in order to test its possible value. In its report for 1924 our committee commented on the matter as follows:

> We are convinced that an appraisal form, if it can be arrived at by the procedure here outlined, would prove of real value to the individual health officer in helping him to develop a balanced departmental program based upon relative values; to check up on the performance of his own bureaus and thus maintain the department at the highest point of efficiency; to defend himself when unjustly attacked, by showing that his department is organized in accord with the views of his professional colleagues; to secure funds for expansion by indicating where his organization falls short of that generally accepted as ideal; and to secure the coöperation of local voluntary health organizations along the most effective lines.

The possible advantages of the appraisal idea were forcibly presented as follows in the report of the American Child Health Association on the use of its first tentative rating schedule in the 86 cities of between 40,000 and 70,000 population. This report says:

> *As a brief for annual appropriations of the Department of Health*—In several cities the rating schedule has been used to show in a comparative objective manner certain deficiencies in the department of health, and the expenditures which would be required to secure a full credit in place of these deficiencies. When presented in this manner to the appropriating body of the city, as a part of the health officer's budgetary request, the health department was, in one instance, the only department of the city government to receive an increase (amounting to 14 per cent) for the coming year. In another instance in the face of a strong movement for retrenchment throughout the city government, the health budget, presented in the light of the rating schedule, was the only departmental budget to remain uncut.
>
> *As a basis for a Health Program*—The value of the rating schedule as an outline of a well balanced health program has appealed to several health officers to such an extent that their future programs are definitely based upon achieving the standards set in the schedule. . . .
>
> *As a basis for an Annual Report*—It has occurred to one health officer to incorporate in the annual report of his health department the detailed rating of his city, for the 83 items included in the schedule, and to publish the score attained, with full discussion of many of the items. Another health officer has largely improved the character of his annual report in the light of the *Appraisal Form*.
>
> *As a means of interesting a Mayor or Chamber of Commerce*—In a city which had recently scored itself the health officer was studying the rating when the mayor of the city happened to enter the office of the health department. Upon being shown the low rating of the city in diphtheria prevention the mayor inquired what could be done to improve the situation. When the health officer explained that he could secure a full score (30 points) if he had $175 with which to buy toxin-antitoxin, the mayor promised to make the sum available from special funds. Other health officers have taken the rating of their city to the mayor or the chamber of commerce and by comparing the local rating with that of other cities have awakened a new interest in the city's health record.

*As a means of arousing and cementing the interests of the Departments of Health and Education and of the private agencies in each other*—A striking outgrowth of the use of the rating schedule in one city where the findings were reported in a special meeting, was the development of a new sense of the interdependence of all health agencies on each other and the formation of a joint health committee on which all agencies were represented under the leadership of the health officer. In another instance the rating schedule brought to the health officer for the first time the realization that he should coöperate with the department of education in its health work if his city was to secure the fullest return from its health activities. School medical inspection was promptly started.

Such evidence as this greatly strengthened our conviction of the value of the plan; and after the elaborate sampling of group judgment described above, tentative drafts of the *Appraisal Form* were issued for further preliminary study in March and in August of 1925 (the latter being called the first edition). The form was finally revised, approved, and officially distributed in a second edition as of January, 1926.

Prepared in this way, with the cooperation of so large a group of health officers and of all the voluntary national health agencies, the *Appraisal Form*, from the first, met with a reception which belied our fears. To compare health department achievement in various communities on the basis of death rates was clearly unreasonable on account of inherent differences in local sanitary, social and economic problems. To compare appropriations and personnel alone was as obviously unfair, since available resources might be used with great or with little efficiency. Between resources on the one hand and mortality rates on the other we had chosen the measuring rod of actual services performed in the belief that "such activities, conscientiously performed over a reasonable period, inevitably lead to the ultimate end of all public health work—the conservation of human life and well-being." The objective and generally quantitative measures of performance (now nearly 200 in number) were sufficiently numerous to be truly representative; and the standards adopted—based, in general, on the actual performance in each respect of the upper fourth of the cities for which data were available—were fair and reasonable.

To avoid the danger of overstandardization and calling a halt on progress, it was agreed that the *Appraisal Form* should be revised at intervals of 3 to 5 years; and in 1926 a sub-committee was appointed under the chairmanship of Dr. George T. Palmer to prepare a revised form. The third edition, on which this committee labored with tireless energy, was issued in January, 1929. Its most important change lay in the fact that instead of a total 1,000 point score for all activities the new form was based on a 100 point score for each major activity, with a conversion factor making it possible to compute a total score when desired. This change was significant of an altered emphasis. In 1924 we thought of relative values as our major problem; by 1929 we had come to realize that "an estimate of the service actually rendered along each line of activity" was the most important aim which could be realized by the use of the form.

Meanwhile, in 1927, a second subcommittee on Rural Health Work, under the chairmanship of Dr. E. L. Bishop, had prepared a tentative *Appraisal Form for Rural Health Service*, a second revised edition of which was issued in 1931. A little later, we extended the idea to the field of industrial hygiene and a sub-committee on Industrial Health Appraisal was appointed under the chairmanship of Dr. L. D. Bristol. This committee issued in 1933 a form for scoring industrial health

services which is now being tested out in actual practice. A fourth edition of the *Appraisal Form for City Health Work* was published in January, 1934, utilizing many new ideas developed in connection with the rural form.

On the whole, the success of the appraisal concept has exceeded our most optimistic expectations. So far as we are aware, the fear that low scores might be used as a basis for unfair criticism of health departments has proved to be unfounded; and the danger of undue complacency resulting from high scores has been avoided by periodic revision with rising standards of attainment. Many just criticisms have been made of individual items, but most of these can be met and are being met in successive editions, which are prepared in the light of actual use by the health officers of the country. The objection that our form measures quantity rather than quality of service is in part a valid and inescapable one; but experience has shown that a large proportion of the quantitative standards of appraisal actually depend for their attainment upon quality of service as well. Another real objection lies in the difficulty of giving weight to the preventive services performed by private physicians; but the form does provide for their inclusion wherever records of such services can be obtained. The *Appraisal Form* has fully justified itself by the test of application. In hundreds of careful surveys its indication of shortcomings in particular activities has been fully substantiated. The best health departments throughout the country use it as a routine measure of their own efficiency; and it has proved, as we believe, one of the most powerful forces ever brought to bear on the general improvement of public health practice.

Our fourth objective was to make the results of our surveys, our standards of administrative practice and our appraisal procedures directly available to the health officers who must ultimately utilize them in actual practice. This has, in part, been accomplished by the simple publication of our surveys, of the various editions of *Community Health Organization* and the *Appraisal Forms,* and by the reports of our various sub-committees. Correspondence with individual health officers in regard to details of administrative practice has occupied a large part of the time of the committee staff; and in 1925 we began the regular issue of a *Health Officers News Letter* to disseminate current information of a more general nature.

A more direct and important type of service has been involved in the provision by our staff of individual local surveys and consultations to particular communities desiring such aid. In the report of the committee for the year 1923 this problem was discussed as follows:

> In addition to the collection and dissemination of information in regard to current procedures it was felt that something more was necessary. As we understand the aims of the members of this association they desire a clear picture of present conditions chiefly in order that those conditions may be improved in the future. Public health practice is in a dynamic, not a static, condition. The object of the health official is to improve the machinery now at his disposal so as to raise it to the highest point of efficiency and to supplement that machinery by obtaining new appropriations sufficient to make his organization meet the requirements of the new public health. It has seemed to your committee that the most important service which the American Public Health Association could possibly render to its members would be to establish a direct field service for the assistance of the executive officers of health departments along the lines laid down above.

The assistance of the Metropolitan Life Insurance Company made it possible to begin a service of this kind in 1924.

The surveys made by the committee

have been essentially of two kinds. The comprehensive studies conducted on cities in 1921 and 1924 and on rural counties in 1932 were made chiefly for the purpose of accumulating data on which our standards of practice could be based; and of course from every survey our staff learns something which is applicable in other surveys. Aside from the three general studies mentioned above, however, the staff has in the last 15 years conducted surveys in 31 states, the District of Columbia, and the Islands of Hawaii. Sixty-five of these surveys have been made in 56 cities (9 being re-surveys), 36 in 24 counties (including 12 re-surveys) and 6 in 5 states (one re-survey). All of these surveys were primarily designed for the guidance of the communities in question rather than for the accumulation of information by the committee itself.

For the most part these local surveys have been paid for by the communities concerned; and this seems in general a sound procedure. Our present policy was announced in 1933 as follows:

> The Committee on Administrative Practice of the American Public Health Association offers the following types of health service:
>
> 1. Complete or partial health surveys of states, counties, municipalities or organizations.
>
> Such surveys involve a complete stock-taking of the health facilities of the organization or area under consideration; a careful analysis of services rendered in relation to existing problems and cost; and, finally, a report on findings and recommendations for future program.
>
> 2. Consultant service in relation to specific problems.
>
> Such service would include, for example, advice and assistance concerning: the inauguration of a new division or activity such as child hygiene; record keeping; how to determine the degree of diphtheria protection among children of different age groups, etc.
>
> 3. Advice on readjusting health activities or programs to new conditions precipitated by the necessity for extraordinary economy.
>
> All the above services are rendered at cost, on a *per diem* basis, except where a community or organization desires a definite contract, so that only such service as is actually rendered is paid for.

We have always felt, however, that the committee should have at its disposal resources which would make it possible under special conditions to make surveys urgently needed by particular communities where no local funds to pay for the study were at the moment available. We still hope that this ideal may ultimately be realized.

The fifth and last of our major objectives, the securing of popular support for public health programs by using the appraisal scheme to arouse local interest in health achievement, is somewhat distinct from the rest of the committee's work. It might quite logically have been undertaken by some other organ of the Association. The idea of developing a sound competitive spirit between various communities in the field of health administration was, however, as I recall, a dominant factor in the mind of Dr. Lee K. Frankel of the Metropolitan Life Insurance Company. When the first grants were made for the committee's work in the year 1923, we suggested that it might be helpful to award medals to certain cities of outstanding merit in community health service, as evidenced by their showing on a special scoring plan. This suggestion was criticised in a subsequent discussion at the Boston meeting and after obtaining by letter the reactions of the health officers of the 83 large cities the project was abandoned for the time being.

Three years later, however, in 1926, the idea was revived in a modest form and on a small scale by coöperation of the committee with the General Federation of Women's Clubs in an annual competition between towns, in which the local clubs prepared a brief summary of the health service of their community, and a free survey was provided by us for the town having the best

record. In the next year Dr. W. Frank Walker (who had been chiefly responsible for establishing contact with the Federation) interested the U. S. Chamber of Commerce in the promotion of health work through its bulletins and other publicity material.

Finally, by 1929, the time seemed ripe for a really comprehensive project. The appraisal form idea had gained general acceptance by this time and preliminary exploration of the general sentiment of health officers showed that the doubts experienced 6 years before had largely disappeared. Dr. Louis I. Dublin was successful in obtaining financial support from a group of life insurance companies, and the first Health Conservation Contest was actually undertaken. This contest, which has now become a regular annual event, is sponsored, both nationally and locally, by the Chamber of Commerce and financed by the coöperating insurance companies. The preparation of a brief appraisal form to be used in submitting returns, and the actual awards are handled by special committees appointed by the U. S. Chamber. The technical conduct of the work, with its extensive field service is, however, in the hands of the C.A.P. staff, and certificates are delivered to the health officers of the winning cities in the 6 population groups at the Annual Meeting of the American Public Health Association. In 1933, when the funds for the support of the contest were reduced, we were forced to call upon the state health departments for aid in the necessary consultation service; and the hearty and generous coöperation of the state health officers has been most gratifying.

The number of cities actually submitting schedules in the city contest rose from 108 in 1929, to 172 in 1931, and fell again to 97 in 1934.

Last year, through the generous support of the W. K. Kellogg Foundation, it was possible to inaugurate a similar Health Conservation Contest for county units, parallel with the city conservation contest and carried on in essentially the same fashion under the auspices of the U. S. Chamber of Commerce.

As in the case of the committee's earlier pioneer ventures, so with the conservation contests, anticipated difficulties have been conspicuous by their absence. Only in the rarest instances have complications developed and, on the whole, the health officers have been enthusiastic over the contest and its results. It would be possible to recount scores of individual instances in which high attainment in the contest has been a major factor in maintaining appropriations and protecting personnel. I personally know that in two of the largest cities of the country a health officer whose tenure was seriously threatened received reappointment from a new administration almost wholly as a result of the concrete evidence of achievement furnished by the *Appraisal Form*. Many more cases could be cited in which low scores in the contest have been successfully used as arguments for increased appropriations at points where particular deficiencies had been revealed. It would be difficult, I think, to cite any single force that has done more to protect and promote high standards of health service than has the Health Conservation Contests.

In the first 15 years of life of the Committee on Administrative Practice it has thus been possible to attain in considerable degree all of our five major objectives.

The committee has developed a technic of health surveys and has so applied that technic as to present a reasonably clear picture of administrative health practice in the United States in both urban and rural areas.

It has crystallized the best elements of such practice in the form of a

Manual of Balanced and Adequate Community Health Organization which has proved of incalculable value in promoting progress along sound and fruitful lines; and has supplemented this general outline by the preparation of standard record forms and by intensive evaluation studies with regard to individual procedures.

It has prepared an *Appraisal Form* which is today generally accepted as a valid instrument for the objective and quantitative measurement of actual attainment in the field of administrative health practice and for the weighing of the relative degree to which various activities should be modified to build a balanced program.

It has rendered direct survey and consultation service to hundreds of cities, and serves at all times as a center for the interchange of information as to the most promising current trends in the field of administrative practice.

In coöperation with the U. S. Chamber of Commerce, it has made possible the carrying out of Health Conservation Contests in such a way as to promote sound competition between various communities and to stimulate those communities to a higher degree of moral and financial support for their local health programs.

These results have been made possible by a number of fortunate circumstances. We could have done nothing without the generous aid of the Metropolitan and the other insurance companies, the Commonwealth and the Milbank Funds and the W. K. Kellogg and other foundations which have supported our work. We have depended for wise guidance on the untiring service and the sound judgment of the committee membership; and I may say that in a somewhat wide experience of committee work I never knew a group with so harmonious a spirit and so universal a readiness to work as the C.A.P. We have owed a very large part of the results achieved to our Field Directors, Dr. Rankin, Dr. Walker, and Dr. Buck, to Dr. Wallace and the other members of our field staff, to such active special collaborators as Professor Hiscock, and to our office secretaries, Mrs. Fraas and Miss Tonnele. Above all, however, the work of the committee has been made possible by the active participation of the members of the A.P.H.A. as a whole and particularly of the health officers—who took so large a share in the surveys, in the preparation of the *Appraisal Form,* and in the application of all the results of our studies. As a matter of fact, it is not the C.A.P. which has done these things. It is the health officers themselves who have accomplished results through the instrumentality of the committee as their central clearing house.

Herein lies the real significance of the entire chapter in the history of public health which we have here reviewed. A professional group of public functionaries has determined to pool the resources of its knowledge and experience in order to establish and maintain the highest possible standards of scientific attainment and of public service. During the brief period of 15 years they have worked out such standards and made them fruitful in actual achievement from one end of our country to the other. They have transformed administrative health practice from a medley of local and accidental enterprises to a concerted national program, growing and developing with the years, modified wherever desirable to meet local conditions, but everywhere based on sound basic principles and moving along considered and directed lines of progress. In so doing they have registered one of the major advances in the story of man's conquest of preventable disease; and they have set an example which may well have

its followers in other areas of the complex field of governmental service.


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# The X-ray Examination of Tinned Foods

THE consideration which has been given to the accepted methods of examination of tinned foods reveals that, short of the actual opening of a tin, extreme difficulty is associated with the giving of an accurate diagnosis as to the soundness of the content. Too often it would seem that stress is laid on methods which rely on the use of the human senses and consequently the findings may be very diversant according to the examiner's interpretation and the acuity of his sense organs. For instance, percussion, palpation, and shake tests might give very different results at the hands of a zealous inspector, or alternatively, at the hands of an importer. Disputes with consignees in the various ports I have been associated with led me to search for new methods which could be employed for the examination of this type of food. One day while reading a technical article on the application of X-rays to industry, and especially in connection with examination of flaws in steel, it occurred to me that it might be possible to adopt X-rays to the examination of tinned food.

. . . Radiography has the following advantages:

1. A permanent record is available for inspection by anyone and may be of use in legal proceedings.

2. The tin is not opened and if deemed to be sound is available to the trade and its price saved.

3. An opinion may be vouched more quickly than in detailed internal inspection.

4. The personal error is more nearly eliminated than in the percussion, palpation, and shake tests.

W. S. Walton, M.D., D.P.H., *J. Roy. San. Inst.*, May, 1935, pp. 600–608.

# Fifteen Years of the Committee on Administrative Practice*

## III. The Viewpoint of a Health Officer

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WE all realize the substantial progress that has been made in administrative public health during the past 15 years. Who or what has been responsible for this advance, in putting public health a little closer to the goal of greatest usefulness? Effective intelligent leadership has played the leading rôle. Has this leadership come from one or more health officers working in separate committees? Has it come from a physician or group of physicians who decided that public health must go forward? Has it come from unofficial health agencies leading the way? Has it come from the general public or from city governments' realization that public health is an investment rather than an expense? While some of these have taken a part, the real leadership has come from the Committee on Administrative Practice, a group of experienced, earnest public health workers who have pooled their broad knowledge and experience and have evolved most of the steps that have been effective in raising the level of public health administration throughout the country.

### WHAT HAS THE COMMITTEE DONE FOR THE HEALTH OFFICER?

Since the organization of the Committee on Administrative Practice 15 years ago, it may be safely stated that *all* health officers have reaped substantial benefits from its activities. I refer particularly to the service it has rendered by: (1) providing the health officer with standards of performance for various public health activities by which he is able to analyze his program objectively; (2) setting up a well balanced plan for a public health program; (3) suggesting standard forms for recording information on essential health services; (4) making available expert personnel for consultation and advice on special problems, as well as for complete surveys; and (5) stimulating and encouraging improvements in community health programs through the annual Health Conservation Contests.

*Standards of Performance*—The history of the development of standards for evaluating public health work, and the pressing need for such standards, are so well known that it is unnecessary to repeat the story here. Nor is it necessary at this time to dwell upon the differences in viewpoint regarding the real value of the *Appraisal Form*. It is important, however, to point to a few significant results which have followed the development and intelligent application of these standards.

We are all familiar with the expansion of health department activities from the basic sanitary and communicable disease control work to a

* Read at a Special Session of the American Public Health Association at the Sixty-fourth Annual Meeting in Milwaukee, Wis., October 8, 1935.

broader and more comprehensive program embracing most of the essential elements for the protection of the community's health. Until recently this expansion was due in a large measure to the pressure brought to bear upon the health officer by local groups interested in some special phase of public health work, such as tuberculosis, baby welfare, or public health nursing. This resulted in over-development in certain fields, while other services have been under-developed or omitted. Moreover, in many instances it produced a program with little or no relationship to the immediate needs of the community.

The Committee on Administrative Practice, by setting up standards of performance and suggested methods for showing the relationship of one activity to another, has enabled the health officer to approach more scientifically the problem of working out a balanced program, one designed to meet the existing situation. By a careful analysis of the public health services in his community he obtains a clearer picture of the adequacy of the present program, and he is able to build up interest in the neglected fields, or to some extent lessen the pressure for more service in others that are already well covered.

National and local agencies gain a more balanced viewpoint when confronted with a picture of the local public health situation as reflected in such a study, and become ready and willing to lend their support to the development of other activities where the need is greater.

*Health Conservation Contests*—The Health Conservation Contests sponsored by the U. S. Chamber of Commerce in coöperation with the Committee on Administrative Practice have had a far-reaching effect in arousing community interest in public health work. As a means of bringing about lasting improvements in health programs of competing communities, too much confidence should not be placed in these annual competitions. Nor should a too literal interpretation be placed upon the numerical ratings of cities, as it is quite likely to breed dissatisfaction among health officers and others in the community interested in promoting sound public health service.

*Consultant and Survey Service*—One of the most important features of the work of the Committee on Administrative Practice is its consultant and survey service. Through its careful study of administrative practices in states, cities, and counties throughout the country, its field staff is well equipped to give expert advice on special problems confronting the health officer, or to make a detailed survey and evaluation of all services in the community, with a view to working out a more adequate and well balanced program.

When I came to New York City as Commissioner of Health, one of the immediate needs was a thorough study of the Health Department staff. It was important to know what each person was doing; how well the work was being done; what shifts in personnel could be made to bring about greater efficiency within the department. With a staff of approximately 2,500, and with many pressing administrative problems, it was obviously impossible for me, personally, to make such a study. I quite naturally turned to the Committee on Administrative Practice as the best qualified agency to undertake this work. The report which the field staff presented upon completion of an intensive personnel study has been used as a guide in making numerous changes among the staff and thus has been an important factor in increasing the efficiency of the department.

A survey and appraisal was also

made at my request by the committee's field staff, and we are now using this analysis as a basis for further reorganization of the department and in planning the program for the coming year.

Besides this as time goes on one has a basis for measuring advances or backsliding in the department.

Time will not permit a further review of the constructive contributions of the committee. I should like to devote some time to a brief discussion of some of the things, which from my viewpoint as a health officer, I feel should be considered in planning its future program.

### WHAT ARE THE FUTURE POTENTIALITIES OF THE COMMITTEE?

The Committee on Administrative Practice has exerted a wide influence in promoting the evaluation of public health activities. I believe the time has arrived when the committee should evaluate its own activities to determine which are worth while and should be continued, which should be discarded, and what new activities should be undertaken.

*Free Service*—The present program of the committee includes Consultant and Survey Service, which is rendered to communities at cost. There are many communities, perhaps those needing this kind of help most, which are unable to pay the cost of this service. Some way should be found for making the service of the field staff available without cost to needy cities. Take for example, a small city that has a special administrative problem. A day spent with the health officer in working out this problem would be of untold value to him, and it would not involve a great outlay of money on the part of the committee. I am strongly in favor of free service for those unable to pay, and believe that it should be a part of the future program of the committee.

*Current Information Service*—One of the objectives of the committee is the supplying of information on current administrative practices. Admittedly this has not been one of its major activities. Yet I know of no greater need among health officers than some central source to which they can turn for up-to-date information on administrative procedures.

During the past year we were confronted with the question of adopting a regulation permitting the sale of vitamin D milk in New York City. It would have been extremely helpful if we could have had from the American Public Health Association a list of cities that had adopted similar ordinances and copies of such regulations.

Numerous other examples might be cited to illustrate the importance of setting up and keeping current this type of service and seeing that it really functions.

*Model Public Health Ordinances*—Another item which I think might be included in the committee's program is the development of model public health ordinances for states, cities, and counties. It may be argued that all states and communities will not require exactly the same ordinances. This is quite true. Nevertheless, suggested model ordinances would be exceedingly helpful as guides in drafting regulations to meet local needs. *The Model Milk Ordinance*, issued by the U. S. Public Health Service, has proved of great assistance to health officers when they were concerned with the drafting of a new milk ordinance for their city.

*Evaluation of Administrative Procedures*—A beginning has been made in the field of evaluating administrative procedures through the committee's studies of Prenatal Care, Scarlet Fever Control, and Diphtheria

Immunization, but there are many other fields which could be profitably explored. Such studies are time consuming and expensive; yet, on the other hand, it seems to me that the time has come when some attempt should be made to evaluate a number of administrative procedures which we have been carefully following for years without being sure of their real scientific value. The set-up of the committee lends itself admirably to the supervision of research work in this field, and this opportunity for a real contribution to the advancement of administrative practice should not be ignored.

*Development of Qualitative Standards*—Most of the criticism launched against the *Appraisal Forms* is that they measure quantity and not quality of service. This criticism is undoubtedly justified, although it is true that a number of items do measure quality, and in others it is implied. However, if progress is to be made in bringing about a wider acceptance of the appraisal idea and insuring a more lasting usefulness, the committee must consider introducing in future editions of the *Appraisal Forms* criteria that have a direct bearing on the character of service rendered. Furthermore, the whole question of relative importance of activities and their relationship to the community health program should be carefully scrutinized.

*More Published Reports* — During the past few months the committee has issued a series of articles in the *American Journal of Public Health*, based on a study of Current Health Department Practices as reported through the Contests. These summaries provide informative data on health department expenditures and personnel. Further studies of this type with published reports of the findings should be a part of the committee's future program.

I am sure there are other health officers who, from their own experience and viewpoint, could add many helpful suggestions for increasing the usefulness of the committee.

Functioning as it does through some 14 sub-committees, the Committee on Administrative Practice offers splendid opportunities for active participation of alert and progressive public health works in planning and carrying forward its activities. The notable success which has marked its work through the 15 years of its existence has been due in no small degree to the bringing into its service for consultation and advice men of wide experience and unbiased viewpoint. With a continuation of this policy, may I predict for the committee many years of satisfactory service.

# Development of Vital Statistics in the Bureau of the Census*

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THE primary task which has faced the leaders of vital statistics in the United States for the last third of a century has been the development of the complete recording of births and deaths. In 1900 the United States was one of the few remaining countries in the realm of Western Civilization which contained large areas in which births and deaths were not registered. The difficulties facing the centralized development of vital statistics arose from the fact that the individual states were autonomous. In 1900 the Bureau of the Census, aided by the American Public Health Association, the state boards of health, and the American Medical Association, drafted a model law which the states were urged to adopt individually in order that the United States might attain a complete and uniform system of registration.

The success of the death registration area led to the establishment of a corresponding birth registration area. With the completion of both areas, by the admission of Texas in 1933, the first great task in the development of building an effective national science of vital statistics has become an accomplished fact.

In charting the course for continued advance in the field of vital statistics, the first necessity was the creation of a new Division of Religious Statistics, General Information and Records, for the collection data not previously obtained by the Census Bureau. Dr. Murphy, formerly Chief Statistician of the Division of Vital Statistics, was asked to assume the leadership. It was felt that his invaluable knowledge of registration problems, gleaned by years of experience in the battle for a complete death and birth registration area, would do much to assure the success of this new division.

In the meantime, the Joint Advisory Committee to the Director of the Census surveyed the various questions and problems involved in charting a future course for vital statistics, worthy of the requirements of a nation such as ours—a course which might eventually result in the blazing of new trails for other nations to follow. The reorganization of the Division in accordance with the recommendations of the committee is now an accomplished fact, one with which you are all familiar.

The choice for the position of Chief Statistician for the Division was a direct result of the committee's recommendation which provided that, if possible, the chief statistician should be qualified as a physician and also as a scientist trained in the technics of biometry and interested in statistical research. The choice of Dr. Collinson for the position of Assistant Chief

* Read before the Vital Statistics Section of the American Public Health Association at the Sixty-fourth Annual Meeting in Milwaukee, Wis., October 9, 1935.

Statistician was also a result of the committee's recommendation that the assistant chief statistician should be qualified as a physician and should also be familiar with the problems faced by the states in relation to public health as well as to vital statistics. I do not need to describe Dr. Collinson's work in connection with vital statistics and public health activities in Maryland, since he is known personally to those present at this meeting. Dr. Linder is another addition to the staff of the Division. His scientific training and publications in the field of biostatistics and psychology will materially strengthen the research activities of the Division.

The next important step taken by the Director of the Bureau of the Census was to ask for the appointment by the Secretary of Commerce of an Advisory Committee for the Division of Vital Statistics. This committee was appointed on July 29 by Secretary Roper. In the selection of the membership of the committee, an attempt was made to secure representation of leaders from among those who gather and use vital statistics.

The names of those asked to be members of the committee are as follows:

Prof. Robert E. Chaddock, Professor of Statistics at Columbia University

Louis I. Dublin, Ph.D., Vice-President of the Metropolitan Life Insurance Company

Haven Emerson, M.D., Professor of Public Health Administration at Columbia University

Lowell J. Reed, Ph.D., Professor of Biostatistics, School of Hygiene, Johns Hopkins University

Stewart G. Thompson, D.P.H., State Registrar of Vital Statistics in Florida

R. C. Williams, M.D., Assistant Surgeon General and Chief of Division of Sanitary Reports and Statistics, U. S. Public Health Service.

The first meeting of this Advisory Committee was held at the request of the Chief Statistician for Vital Statistics on September 20, 1935, in the Commerce Building at Washington, D. C. Dr. Reed was elected by the committee as its chairman, and Dr. Thompson, secretary.

The purpose of the meeting was to formulate a plan for the future development of the Division of Vital Statistics, Bureau of the Census. The committee came to the agreement that the future development of the Division should be extended along the following broad general lines:

1. Extension of field work in order to secure and maintain completeness in the registration of births and deaths, to improve the completeness and accuracy of the data noted upon the original certificates, and to promote coöperation between federal, state, and non-official agencies dealing with and interested in vital statistics.

2. Coördination of state and federal statistical office activities with the object of eliminating overlapping effort in so far as possible.

3. Development of means by which the total data in the birth and death certificate might be made readily available for special public health and scientific needs.

4. Stimulation of research within the Division by appropriate coöperation of the Division with outside scientific and public health agencies, and by building up within the Division a personnel whose principal duties will be the analysis and solution of important vital statistical problems.

### EXTENSION OF FIELD WORK

The customary method of testing completeness in registration of births and deaths has been by the post card check. All states have entered the registration area only after they have passed a test in completeness of registration as indicated by post card check. It is necessary to maintain continued interest in the completeness of registration in order to create a general public consciousness of the need and value of complete registration of births and deaths. The post card method of survey undertaken with the permission and coöperation of the officials of the

state department of health is the most valuable mechanism for this purpose. A publicity campaign consisting of newspaper articles, lectures, visits to physicians, midwives, local registrars, undertakers, etc., is usually conducted as a preliminary step. It is essential that post card surveys be carried on in future even as they have in the past.

The information on the card dealing with birth consists of the factors—name of child, color, birth date, place of birth, name of parents, and address. The post card reporting deaths contains the name of decedent, color, date of death, place of death, name of informant, and address.

On the usual post card surveys this information is requested for those births and deaths which occurred during the previous 12 months. Through the courtesy of the Postal Service, one post card is sent to each family. All returned cards are checked in the state office of vital statistics against the index of births and deaths, or against the actual original certificates of births and deaths. By this means the percentage completeness of births and deaths previously recorded by the state or city registrar can be evaluated in terms of the number of births or deaths reported on the post cards.

Other methods of survey to ascertain the completeness of registration have been used, of which the principal one is that of enumeration. This method, admittedly more accurate than the post card survey, is considerably more expensive. For reasons of economy, the post card method must ordinarily be used. Its accuracy however, should be checked with that of the enumeration method from time to time. One such test has been conducted this year in the State of Georgia, and it is hoped that other comparisons of a like nature can be obtained in the near future.

There are other aids to complete registration. In all state offices certificates of death of children under 1 year could be checked against records of births to determine if the birth has been reported. This is a very simple process and can be carried out as a routine monthly office procedure. Whenever school authorities take the census of school and preschool children, the information from these schedules can be used to determine if births have been registered completely. Assistance in checking the completeness of registration can be obtained by comparison of state files with information concerning births and deaths taken from lists reported by hospitals, physicians, or undertakers. In isolated and backward areas information on births and deaths can be obtained from church records. In the registration of Indians, whether on or off government reservation, considerable gain can be made by closer coöperation with the Office of Indian Affairs.

In addition to the necessity of vigilance in maintaining completeness of registration of births and deaths, it is hoped that attention can be focused in the future upon the problem of obtaining greater completeness and accuracy of the contents of the birth and the death certificates. This is for the most part an experimental problem to be solved by special studies.

The necessity of stimulating promptness in the transmission of birth and death certificates from the local areas to the state office and from the state offices to the Vital Statistics Division of the Census Bureau is another field problem involving primarily a closer coöperation between this Division and the state offices of vital statistics.

The Division of Vital Statistics has obtained authorization for 6 medically trained field workers who will assist in the solution of these manifold problems. In the course of a year an agent would presumably work in a number of states. He would be a representative of this

Division in coördinating federal with state activities, and at the same time would serve as a medium for exchange of ideas between states.

The Division hopes to continue the regional conferences of state registrars which have proved to be of great benefit in coördinating the activities of federal and state divisions of vital statistics. Attendance at local, state, and national meetings, and visits to the states by the officials of this Division will be an additional aid in the interchange of ideas and the maintenance of a spirit of coöperation.

### COÖRDINATION OF FEDERAL AND STATE OFFICE ACTIVITIES

The Division of Vital Statistics is cognizant of the extensive overlapping in activities which exists at present in the state and the federal offices of vital statistics. Both offices code the death and birth certificate completely with a consequent loss in the effective use of the clerical personnel in the respective offices. It is the desire of the Division to eliminate such overlapping activities in so far as possible. The function of the field worker in connection with this process will be invaluable. Each field worker will be trained in the practices of the U. S. Division of Vital Statistics. Consequently when he is working with the state registrars, he will be able to help in the coördination of the office activities of the state and federal divisions.

As a prerequisite to coördination of office activities, a loose-leaf instruction manual is being prepared by this Division. This manual will describe minutely every process involved in coding and punching of the information from the birth and the death certificate on the 45 column punch card which was adopted by the Division on July 1, 1935. In addition to the detailed information on coding and punching, all variations in practices involved with coding of causes of death will be incorporated as part of the instruction manual. The instruction manual will be distributed to all state registrars and to others who are interested in the procedure followed by this Division. No alterations in the rules announced in the instruction manual will be made except by officially approved amendments. Such amendments will be furnished to those on the mailing list to whom the instruction manual is distributed. It is hoped that a precise written presentation of the practices of this Division will aid materially in bringing state and federal office practices into harmony.

Perhaps the one factor which is the greatest barrier in obtaining this goal is the coding of causes of death. The difficulties involved in the selection of the primary cause of death by use of the *Manual for Joint Causes of Death* are particularly complex and bewildering.

A letter was sent to the state registrars on August 30, 1935, soliciting their coöperation in a study of this question. Enthusiastic response indicated the urgency of obtaining simplification of the exceptions which have been made in the exact use of the *Manual of Joint Causes of Death*. Instructions to coders of causes of death will be included as a part of the instruction manual. The state registrars may rest assured that the rules for coding cause of death will be strictly adhered to by the Division of Vital Statistics, and that any alterations will be made only after approved amendments have been distributed to all.

The Division of Vital Statistics, acting upon the advice of its Advisory Committee, expects to study the effect which multiple causes of death have upon the method of selection of the primary cause of death by use of the *Manual of Joint Causes of Death*. With such knowledge, it will be pos-

sible to obtain an understanding of the death rates which are computed by using the primary cause of death. It is particularly desirable that such a study of the primary or contributory cause be available in connection with maternal deaths, and consequently it is anticipated such analysis can be made upon the 1935 death certificates.

### GREATER AVAILABILITY OF TABULAR DATA FROM THE BIRTH AND DEATH CERTIFICATES

At present the measure of public usefulness of the Division of Vital Statistics is represented largely by tabulations which are made from the data under its jurisdiction. In the past such tabulations have been concentrated for the most part in the volumes of mortality and birth statistics. In the future it is hoped that progress can be made which will make available more extensive tabular information than exists in the printed volumes. This will be achieved by the following:

A. Making available in depository libraries tabulations which can be printed only in limited editions by mimeographic or photographic printing processes.

B. Tabulating many special tables which will be held in manuscript in the central office. A list of all such tables which can be photostated upon demand will be published.

C. Summarizing the data of individual certificates of birth and death upon summary punched cards which will make possible upon demand and with a minimum of clerical effort, unusual and manifold kinds of tabulations.

A summary card set-up signifies what the name implies; *i.e.*, a secondary set of punched cards which summarize the data for a given community and cause of death. When the data of given communities are summarized upon punch cards, the data can be recompiled with very little effort by passing the summary cards of those communities through the tabulating machinery. It is hoped that some such plan can be devised in the immediate future so that demands for special data by public health officials or by scientists involved with specialized research interests can be answered without delay.

It is important to note that the total data on the birth and the death certificate are not completely transferred to the punched card. It is vital to the continued development of the Division that it have access to all the data on the certificates. For example: the problem of studying the effect of multiple causes of death upon the selection of the primary cause of death by the use of the *Manual of Joint Causes of Death* could not have been studied in 1935 if the detailed information upon the death certificate were not available to this Division. Likewise the study of multiple causes of death in connection with puerperal deaths could not be carried through without having access to the original certificates. Consequently, the elimination of overlapping activities between state and federal vital statistical offices should not preclude the ability of the federal Division to obtain the complete information on the original birth and death certificate.

### DEVELOPMENT OF RESEARCH

In the past special studies by the federal Division have been made occasionally upon request from special organizations. Monographs have been published under the sponsorship of the Division. It is hoped that in the future a considerable amount of clerical effort, devoted at the present time to tabulation, can be released by the use of a summary punched card set-up. If this can be achieved, the time of this clerical personnel can be allocated to the functions of computation and research. The necessity for greater activity by the Division along these lines is obvious. Special study is

needed in connection with the relation of births and deaths to population and the estimates of population in intercensal years. The degree of reliability of the Division's own work is also a function for divisional research. The numerous problems involved in the allocation of death and birth by residence will be faced. Residence as well as place of death will be coded and punched on all 1935 mortality and nativity cards.

In conclusion, may I express the appreciation of the members of the Special Advisory Committee of the Division of Vital Statistics as well as that of the Director of the Bureau of the Census and the officers of the Division of Vital Statistics for the spirit of coöperation which has been evidenced in these early months of reorganization. By joining hands with the state registrars of vital statistics and the state health officers, it is within the power of the United States to win a position in the world of vital statistics which is second to that of no other nation.

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# St. George, the Patron Saint of Lepers

THE legends and stories about Saint George (St. Georg, St. Jörgen) are many. The Near East, as well as England, Aragon and Portugal claim him as their patron saint. Living in the 3rd century, he belonged rather to the Christian Church as a whole than to any locality. The Catholic Church, the Anglican Church, the Greek Church, the Syrian Church, and even the Mohammedans revere him. Central Europe, too, has its legends concerning him. . . .

An old German picture from the Middle Ages illustrates the story of St. George killing a dragon with a spear. This story is found in the Golden Legend by Jacobus de Voragive, and resembles a Christianized form of the ancient legend of Perseus slaying the sea monster to save Andromeda, or of the sun god as the conqueror of darkness. More recent crusaders against leprosy have revived the legend and refer to St. George as fighting leprosy, the dragon destroying the health of the Middle Ages. This idea has some historic significance, since in that period St. George was honored already as the patron saint of lepers, and an order named after him, the Knights of St. George, took much interest during the Middle Ages in nursing lepers.

The Second International Leprosy Conference, held in 1909 at Bergen, Norway, under the secretarial supervision of Dr. H. P. Lie, used the old legend in its emblem, and in 1932 the International Leprosy Association adopted a slightly modified form of this emblem as that of the new organization. Thus we see legends live on, modifying their forms as time and circumstances demand. . . . Lee S. Huizenga, M.D.—*International Journal of Leprosy*, pp. 337–338.

# National Aspects of the Social Security Program as They Pertain to the Children's Bureau*

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IT is a privilege and an honor to participate in the Sixty-fourth Annual Meeting of the American Public Health Association, an organization which through the years has contributed so much in inspiration, illumination and guidance to the great objective of protecting and advancing the health of the people.

It was logical and highly appropriate that measures for strengthening and extending the public health services and the special services for the health and welfare of mothers and children should be incorporated in the National Social Security Program recently authorized by Congress. Throughout the ages war, pestilence and famine have been the great specters under whose shadows men have built homes and women have borne and reared children. Civilization is still at grips with war, whose power has been vastly augmented by science. In the Western World we no longer speak of pestilence, though we are no less vitally concerned with forces menacing life and health, and we have translated famine into unemployment and economic depression.

It is unnecessary to emphasize in this gathering the close relationship between conditions which shorten life and drain body and mind of strength and vigor, and conditions undermining economic welfare. Illness has long been recognized as one of the major causes of that poverty which persists ir times of prosperity as in times of depression. Moreover, as shown by studies made by the U. S. Public Health Service in coöperation with the Milbank Memorial Fund, the incidence of sickness appears to be greatest in families whose standards of living are seriously and somewhat suddenly reduced. Long before the depression which put 8,000,000 American children under the age of 16 years on the relief rolls, the toll which poverty and economic exploitation took of the lives and welfare of children was known to be severe. The earliest studies of the Children's Bureau, dealing with infant mortality in representative industrial cities, showed that low earnings and high infant mortality rates went hand in hand. Juvenile delinquency is one manifestation of the absence of mental and social health, and there is evidence indicating that areas in our large cities having high delinquency rates also have high infant mortality rates and high incidence of communicable disease.

Security in our childhood was a creation of the family and its circle of

* Read at a Special Session under the auspices of the Health Officers Section of the American Public Health Association at the Sixty-fourth Annual Meeting in Milwaukee, Wis., October 8, 1935.

relatives, friends, and neighbors, with few outer guarantees. Death, illness, accident, poverty, unemployment, were individual calamities for which society made only the most meager provision. With the developing prosperity of the new century and the increasing awareness of the public of the need for community provision for health and welfare, both public and private resources for the prevention and care of illness and social distress multiplied, and great organizations of men and women lent effective support to these movements. Yet in spite of national influences expressed through federal and voluntary organizations and considerable gains in state legislation and administration, progress on the whole was uneven, varied greatly from state to state and within areas of the same state, and left large numbers of men, women, and children almost entirely outside the reach of the developing concepts of social responsibility and social protection.

Thus we came to the cataclysm of 1929 and the succeeding years, which shattered the security of the most self-confident and awakened us to widespread realization of the need to remold our economic and social life so as to afford more adequate safeguards for individual and family activities and growth. The development of policies designed to afford such safeguards has included financial, agricultural, industrial, relief, public health, social welfare, and other measures related to social well-being. The Social Security Act, approved August 14, 1935, after a year of study by the Cabinet Committee on Economic Security headed by the Secretary of Labor, and experts associated with it, is concerned with one of the major aspects of security outlined by the President in his message of January 4, 1935—"Safeguards against misfortunes which cannot be wholly eliminated in this man-made world of ours."

The Act, which, as you know, includes provision for unemployment compensation, old-age security, security for children, aid to the blind, extension of public health services, and vocational rehabilitation, is based primarily, with the exception of the titles dealing with old-age benefits, upon coöperative federal-state relationships. Its philosophy, as stated by the Secretary of Labor in her address to the Second National Conference on Labor Legislation, is that of "mutuality and coöperation." Concretely, this philosophy is expressed in coöperative relationships to be developed between the federal government and the states; the states and local government units; the official agencies within these areas of government concerned with health, education, and public welfare; and the official agencies and representatives of voluntary groups such as medical societies, public health nursing organizations, other health groups and organizations, and social welfare agencies. As a foundation for all these professional undertakings the understanding and intelligent support of great lay groups of citizens are essential. The Social Security program can be carried out only as it becomes in each state a state-wide program, clothed with specific provision for making it effective in the lives of the men, women, and children of the state, and supplemented by such other measures of social provision for human needs as experience shows to be necessary and feasible.

The Cabinet Committee on Economic Security and the committees of the House and the Senate which gave extended consideration to the Social Security proposals concurred in recognizing that the core of any social program is the child; that all parts of the Act are in a very real sense measures for the security of children; but that "in addition," in the words of the Senate Finance Committee, "there is

great need for special safeguards for many underprivileged children." The Cabinet Committee had in mind the millions of children under the age of 16 years in families receiving relief, of whom over 700,000 were in families without the presence of the normal breadwinner; the 280,500 children receiving benefits under the inadequate and uneven provisions for mothers' aid, now authorized by the laws of 46 states and the District of Columbia; the physically handicapped children numbering from 3 to 5 million; and many other classes of children receiving or in need of social protection.

The report also called attention to the economic loss and the insecurity for children resulting from the high rate of maternal deaths in the United States, and the inadequacy of prenatal and obstetrical care in both urban and rural districts. It emphasized the drastic reductions in state appropriations for maternal and child hygiene; the need for more adequate infant and child health service, especially in rural areas, where since 1929 infant mortality rates have exceeded the rates for urban areas; and the need for the development and extension of state and local programs for crippled children.

The special measures for the health and welfare of children incorporated in the Social Security Act constitute recognition of the fact that security and opportunity for children are dependent not alone upon family income but also upon parental intelligence and community provisions for the health and social services which individual families under modern conditions cannot provide by their own efforts alone.

Title IV of the Act provides for extending and strengthening state provision for needy dependent children in their own homes who have been deprived of parental support or care by reason of the death, continued absence from the home, or physical or mental incapacity of a parent. The federal government will give aid to the states for this purpose, amounting in general to one-third of the cost of state plans approved by the Social Security Board, which is given administrative responsibility for this Title of the Act. The plans must provide for state-wide operation, must be mandatory upon local political subdivisions if administered by them, must be administered or supervised by a single state agency, must give opportunity for state review of claims denied, and must provide for efficient methods of administration. In a number of states it is necessary to amend state legislation and provide for state appropriations in accordance with the provisions of the Act, and some states have already taken such legislative action. In the development of this part of the program and of the child welfare provisions to be described later close relationships between the Children's Bureau and the Social Security Board will be maintained.

The Children's Bureau is given responsibility for the administration of Title V, except part 4 (section 531) authorizing additional appropriations for vocational rehabilitation services which are to be administered by the office already charged with this responsibility, namely, the Office of Education. The annual appropriations authorized to be administered through the Children's Bureau, under the general supervision of the Secretary of Labor, are as follows:

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| For grants to states | $8,150,000 |
| Maternal and child health services | 3,800,000 |
| Services for crippled children | 2,850,000 |
| Child welfare services | 1,500,000 |

An annual appropriation of $425,000 is authorized to enable the Children's Bureau to carry on necessary administrative functions and to make such studies and investigations as are necessary to promote the efficient adminis-

tration of those portions of the Act for which the Bureau is responsible.

The primary purpose of these portions of the Act, as described in a bulletin, *Grants to States for Maternal and Child Welfare,* recently published by the Children's Bureau, is to extend and strengthen services for mothers and children in rural areas, in areas suffering from severe economic distress, and among groups in special need. These are the people who have been hitherto, for the most part, outside the reach of health and welfare services that have been more generally available in cities. In this connection it is interesting to note that whereas the urban infant mortality rate increased 1 point from 1933 to 1934 (from 57 to 58), the rural rate increased 3 points—from 59 to 62. Certain urban districts, however, still have exceedingly high rates, and programs to be developed by the states under the Act will reach some of these areas as well as the less populous portions of the country.

The amount of $3,800,000 available for maternal and child health services as follows:

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|---|---|
| Uniform apportionment, $20,000 to each state | $1,020,000 |
| Apportionment on basis of live births | 1,800,000 |

These amounts, totalling $2,820,000, are available for payment of half the total expenditure under approved state plans. In addition, $980,000 is available for allotment by the Secretary of Labor in accordance with the financial need of each state for assistance in carrying out its plan, after the number of live births is taken into consideration.

The federal administration of this part of the Act has been placed under the immediate direction of a Maternal and Child Health Division in the Children's Bureau, headed by a physician and receiving general supervision from the Assistant Chief of the Children's Bureau, Dr. Martha M. Eliot. State administration is vested in the state agency of health.

State funds appropriated or otherwise provided by the state itself must be made available for payment of part of the costs of approved plans. Funds appropriated or made available by political subdivisions (counties, cities, or towns) may also be counted, provided such local activities are brought into the state plan and under the general supervision of the state department of health. State or local funds used for matching any other federal appropriation cannot be counted in establishing eligibility for federal assistance under this portion of the Act.

Responsibility for initiating and developing state plans rests with the states. They are to be approved by the Chief of the Children's Bureau if they conform to certain conditions specified in the Act. These conditions include, in addition to provision of public funds as indicated earlier, provision for such methods of administration (other than those relating to selection, tenure of office, and compensation of personnel) as are necessary for the efficient operation of the plan, and such reports as may be required; and provision for extension and improvement of local maternal and child health services, for development of demonstration services in needy areas and among groups in special need, and for coöperation with medical, nursing, and welfare groups and organizations.

The general principles governing the portions of the Act relating to services to crippled children are similar to those governing maternal and child health services. The appropriation of $2,850,000 is to be allotted, $20,000 to each state and the remainder on the basis of numbers of crippled children in need of services and costs of furnishing services to them. Grants to the states must

be matched in full by state or state and local funds. Conditions which must be met before plans are approved include coöperation with medical, health, nursing, and welfare groups and organizations and with any agency in the state charged with administering state laws providing for vocational rehabilitation of physically handicapped children. The funds are to be used for the purpose of enabling each state to extend and improve, especially in rural areas and areas suffering from severe economic distress, services for locating crippled children and for providing medical, surgical, corrective, and other services and care, and facilities for diagnosis, hospitalization, and aftercare for children who are crippled or who are suffering from conditions that lead to crippling. The funds provided are not available for the education of crippled children.

The administration of this part of the Act will be under the immediate direction of a Crippled Children's Division of the Children's Bureau, headed by a pediatrician with special experience in the development of community programs for crippled children, and receiving general supervision from the Assistant Chief of the Children's Bureau. State administration will be through a state agency having responsibility for medical care for crippled children. If several agencies are responsible, one should be designated by agreement of those concerned.

The appropriation of $1,500,000 for child welfare, to be allotted $10,000 to each state and the remainder on the basis of rural population, is to be available for coöperation with state public welfare agencies in establishing, extending, and strengthening, especially in predominantly rural areas, public welfare services for the protection and care of homeless, dependent, and neglected children, and children in danger of becoming delinquent. They are to be used for payment of part of the cost of district, county, or other local child welfare services in areas predominantly rural, and for developing state services for the encouragement and assistance of adequate methods of community child welfare organization in areas predominantly rural and other areas of special need. The program will be under the immediate direction of the Child Welfare Division of the Children's Bureau, headed by a social worker.

Because of the failure of Congress to pass the Third Deficiency Appropriation Act, the program, which it had anticipated would be fully under way by this time, is still in the planning stage. Fortunately, relatively little state legislation is required to enable the states to coöperate with the Children's Bureau, provided state funds, supplemented by local funds, can be made available for the coöperative activities authorized.

The Secretary of Labor, on the recommendation of the Children's Bureau, has appointed 4 advisory committees to assist the Children's Bureau in the development of general policies. These committees, whose membership will be announced shortly, include representatives of various branches of the medical profession, public health nursing and social services. They are as follows: General Advisory Committee on Maternal and Child Welfare Services, Maternal and Child Health Advisory Committee, Advisory Committee on Services to Crippled Children, and the Child Welfare Advisory Committee. The committees will probably be called together within the next 2 months.

The Children's Bureau has appointed persons to have charge of the development of the work of the 3 divisions responsible for the coöperative activities under the Social Security program, and has assigned a few physicians and social workers as field representatives,

available for advisory services desired by the state agencies in connection with the development of state plans. It is hoped that such progress can be made in the development of plans in many states that they can be approved by the time appropriations become available, so that payments of the first grants can be made promptly. The Bureau will endeavor to give information and assistance to the states, so that the experience of the best will be made available to all, the children thus being afforded the maximum service possible. Studies and investigations will be undertaken in coöperation with state agencies in order to afford a sound basis for the development of various aspects of the program.

Administration of the three types of aid for maternal and child health and welfare will be closely integrated, for we have learned that it is impossible to divide a child's life into separate compartments; physical and mental health are mutually interdependent. The care of the crippled child is an excellent example of the need for coördination of medical, nursing, and social services. Locally, much of the work of locating and diagnosing crippled children will be carried on through maternal and child health services; nurses will assist in follow-up after discharge from hospitals; and social workers will assist in determining financial need, developing plans for boarding or institutional convalescent care, and preparing the family for the child's return. Mental hygiene services should be developed, as opportunity offers, in connection with both the health and the welfare programs.

Although specialized direction of the services planned will be given by 3 divisions in the Children's Bureau, a unified program of field service is being developed. The same physicians will be available for consultation service to the states for both the maternal and child health and the crippled children's programs, the same public health nursing consultants for both programs and probably the same social workers for the crippled children's and child welfare programs. Close coöperation among the various federal agencies concerned in the Security program will be maintained.

Locally, a broad base of county or district public health service and social service is essential. The maternal and child health program must be developed as part of a generalized service, with specialized consultant service provided. In many areas similar relationships between specialized and generalized social services will be developed. Both generalized service and specialized service, at least of an advisory nature, are necessary if the needs of mothers and children are to be met.

The success of the undertaking will be dependent chiefly upon the extent to which the state coöperating agencies can be equipped with qualified personnel and leadership. State and local services immune from political interference, staffed with people qualified by training and experience for the work to be undertaken, and working with the full coöperation of professional and lay groups, are essential.

The facilities provided by the Act will not relieve private health or social welfare agencies of any responsibility they are now carrying. The need for generous support of private agencies will be as great as ever. Most of the services provided for mothers and children and for crippled children will be entirely outside of the large cities.

In the development of both the maternal and child health and the crippled children's programs, the understanding and coöperation of the medical profession and of specialists in public health administration are of the utmost importance. Questions involving medi-

cal relationships will be dealt with by national and state advisory committees on which the medical profession will be represented. The Children's Bureau will advise the states that evidence that medical and health groups have been consulted and are coöperating must be included in plans for state and local activities. We shall look to the members of the American Public Health Association for counsel and for assistance in placing these programs upon a secure foundation.

These activities, together with others developed through federal, state, and local participation and the coöperation of voluntary groups, will help to extend to the entire nation such safeguards as are necessary for the general health and well-being. Through them, families and communities will be strengthened in their ability to provide for their children that security and opportunity for satisfying living and achievement which is in harmony with our highest ideals.

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# Annual Report of Montefiore Hospital

THOSE who are interested in promoting public understanding of the place and utility of great hospitals will be fascinated by a popular edition of the Annual Report of Montefiore Hospital in New York City. The booklet is entitled, "Fannie Hurst's Visit to Montefiore," and in a very clever fashion the author has made the hospital seem a human place where, "in spite of the scientific evidence, the tremendous medical achievement, the equipped laboratories, and the high powered minds behind the façade of Montefiore, a warm human atmosphere radiates." "It must suffice to say that by some subtle and blessed technic a hospital has become a humane as well as a human enterprise."

Fred M. Stein, Member A.P.H.A., is President of Montefiore. The hospital is a member of the United Hospital Fund in New York which is at present having an annual campaign. The booklet is beautifully illustrated with hospital scenes, and might prove an inspiration to some health department to humanize the figures which make up the ordinary health department reports.

# Present Status of the Vitamin B Complex*

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IN the report [1] on "Human Requirements for Vitamins" given by your committee on nutritional problems at the annual meeting in Pasadena, only vitamin B and the antipellagric factor were included in the vitamin B complex. A survey of the recent literature makes it very evident that we must deal with more than 2 factors. Results have been obtained which indicate that the older factors are of multiple nature. Most investigators also seem inclined to include newly discovered factors in this group. It is unfortunate that factors which are not abundant in yeast and which are not readily soluble in water should be referred to as part of the B complex, but the reason is undoubtedly that a realization of their existence came with studies on vitamin $B_1$ or $B_2$.

The magnitude of the literature and the number of individual factors to be discussed is probably discouraging to those who are interested mainly in practical nutrition. However, I feel that we should be encouraged, for it is indicative that we are learning more about the constituents of our food and that we are making available more weapons to combat deficiency diseases. The greatest difficulty encountered in the study of the B complex is the lack of satisfactory methods for the assay of the factor in question. The properties of the water soluble group are so similar that any method for the elimination of one of the factors in a purified ration tends to remove all the factors, and concentrates to furnish one factor are apt to contain appreciable amounts of others. Much confusion has also arisen due to reliance entirely upon growth experiments. It is true that if an animal fails to grow on a purified ration, and a certain concentrate increases the rate of growth, we are dealing with an essential nutrient, but it is difficult to be certain that one specific factor is being dealt with. Greatest progress will be made when specific pathological symptoms can be produced in experimental animals for each of the factors.

With these limitations in mind I wish to list the factors which may be included in this group and discuss briefly the more important ones.

### VITAMIN $B_1$

There has been a renewed interest in the assay of food materials for vitamin $B_1$ mainly because it has been realized that earlier determinations were complicated by the absence of other essential factors and because an international unit for vitamin $B_1$ has been established. Birch and Harris [2] have shown that vitamin $B_1$ is specific for the cure and prevention of bradycardia in rats and have used this method for assay work. We have found the prevention of polyneuritis in chicks fed an autoclaved natural grain diet to be very satisfactory for the

* Read before the Food and Nutrition Section of the American Public Health Association at the Sixty-fourth Annual Meeting in Milwaukee, Wis., October 8, 1935.

estimation of vitamin $B_1$. The relative potency of materials fairly high in vitamin $B_1$ may not be changed much by improved methods of assay. However, foods rich in other growth factors will undoubtedly show a lower potency when assayed by methods involving prevention of polyneuritis. This is especially true in the case of liver since we have found heart muscle, kidney, and even pork skeletal muscle to be richer in this vitamin than liver. Foods low in other components of the B complex will probably show a greater vitamin $B_1$ content. Yeasts when properly tested show a greater variation than is generally supposed. We have found brewer's yeast to be 12 to 16 times as potent as some samples of baker's yeast. It may also be necessary to reconsider the destruction of this factor during the canning process. Results in our laboratory show that 50 to 75 per cent of the vitamin $B_1$ in meat products is destroyed during the canning process.

Eventually the potency of foods will be expressed in terms of crystalline vitamin $B_1$. However, as yet there is no agreement concerning the relation of the potency of the vitamin crystals to the international standard. Ohdake [3] has reported that 1 gamma of his crystals is equal to 1 international unit. Ammerman and Waterman [4] found that it required 5 gammas of Williams's crystals to equal 1 international unit. In our work with chicks we found 1 international unit to equal approximately 3 gammas of the Ohdake crystals.

The very recent results of Baker and Wright [5] who used the method of Birch and Harris remind us again that vitamin $B_1$ is not abundant in most of our foods. Most of our fresh foods contain about 1 International unit per gram. Certain samples of yeast may run 30 to 40 units, but most of the yeast contains 10 or less units per gram on the dry basis. Wheat germ and the embryo from other seeds run from 10 to 20 units. Pork muscle may contain as high as 8 units per gram on the dry basis or 2–3 on the fresh basis.

Cowgill [6] has prepared a formula for the calculation of the vitamin $B_1$ requirement of man based on body weight. According to his figures a 70 kilo man requires about 6,000 mg. equivalents or 300 International units per day. Of course, a number of factors, such as ability to assimilate the factor from the food, body reserves, etc., will affect the requirement. The availability now of crystalline vitamin will be of great help in the treatment of certain severe cases of $B_1$ deficiency. The exact chemical constitution of $B_1$ is still unknown, although Williams and his coworkers have demonstrated the presence of 2 groups in the molecule, namely, 6 amino pyrimidine and a thiazole ring.

The physiology of $B_1$ activity is extremely interesting. There seems to be good evidence that it is concerned with some part of the oxidative mechanism in carbohydrate metabolism, especially in the metabolism of pyruvic acid. It is now evident that its function is not limited to the brain but that it acts on other tissues as well.

### VITAMIN $B_3$

The existence of a factor having properties similar to those ascribed to vitamin $B_3$ seems quite probable. This factor was first postulated by Williams and Waterman [7] as necessary for the growth of pigeons. Waterman and Ammerman [8] have shown very recently that, although 3 gamma of vitamin $B_1$ crystals will cure the polyneuritis in pigeons fed an autoclaved wheat diet, increased amounts (as high as 160 gammas) give further increments in weight. The same workers [9] have reported similar results in the case of rats on synthetic diets. It is entirely

possible that vitamin $B_3$ is also operative here since there is no reason to believe that rats and birds require different factors. In our laboratory we have found that chicks produced at certain periods of the year and fed autoclaved ration plus $B_1$ crystals develop severe gizzard lesions similar to those described by Dam and Schönheyder [10] in chicks reared on synthetic diets. This condition was prevented by addition of unautoclaved natural foods. The stability of this factor is therefore similar to that of vitamin $B_3$. The importance of this factor in human nutrition cannot be discussed without further work, but if it is essential, it may be of equal importance with $B_1$ because it is so readily destroyed by heat and moisture.

### VITAMIN $B_4$

In 1929, Reader [11] demonstrated the existence of an additional factor in the B complex which was finally designated as $B_4$. At first its existence was based on subnormal growth in rats receiving a B low ration plus adequate amounts of $B_1$ and $B_2$, but later definite pathological symptoms were described. Reader [12] gives the following symptoms: general muscular weakness, spastic gait, swollen paws, and a tendency to sit in a hunched position. In a later paper, Barnes, O'Brien, and Reader [13] state that lack of coördination is the most marked symptom. Halliday [14] has reported similar symptoms in rats and found the preventive factor in wheat.

Two years ago Keenan, Kline, Elvehjem, and Hart [15] described a typical paralysis in chicks placed on a simplified diet of casein, dextrose, salts, yeast, and cod liver oil. The paralysis is characterized by lack of proper coördination and extreme difficulty in locomotion. Liver, brain tissue, and fresh grass were found to supply the lacking factor. Due to the similarity of the properties of the factor necessary for chicks and that described by Reader we concluded that we were dealing with $B_4$.

Pappenheimer and Goettsch,[16] in 1931 described a cerebellar disorder in chicks reared on simplified diets. It is quite probable that the condition is related to the $B^4$ deficiency we have described in chicks. The clinical behavior is very similar, and we have found pathological changes in the brain similar to those described by Pappenheimer and Goetsch.

The studies on $B_4$ have not been extensive enough to learn much about its properties. Preliminary work has shown that it is water soluble and very labile, especially in the presence of oxygen. It seems to be associated with the fat fraction under certain conditions but can be extracted from the fat by water. Barnes, O'Brien, and Reader [13] described the isolation of active crystals but the crystals were essentially adenine hydrochloride. Since adenine itself is inactive, the action of their crystals must have been due to the presence of active impurities. It is interesting that considerable adenine is obtained in the final stage of the $B_4$ concentration. The $B_4$ may be related to certain adenine nucleotides or nucleosides.

The physiology of $B_4$ remains entirely for future experimental study. However, it is quite probable that the factor will find an important place in human nutrition and in the treatment of certain brain disorders. The fact that this vitamin is not abundant in most foods and is so easily destroyed may make it one of the more important factors in the B complex.

### VITAMIN $B_5$

Carter, Kinnersley, and Peters [17] have termed a factor necessary for maintenance nutrition in the pigeon vitamin $B_5$. They concluded that it

could not be identical with $B_3$ or $B_4$ because it was stable to an alkaline heating that would destroy these factors. Since it is now known that vitamin $B_2$ consists of more than one factor and since it is also known that birds as well as rats require vitamin $B_2$, the status of vitamin $B_5$ needs reinvestigation.

### VITAMINS $B_2$ AND $B_6$

Although there is considerable controversy in the literature concerning vitamin $B_2$, the majority of the workers have used this term to designate the antipellagric or antidermatitis fraction of the B complex. Goldberger and Lillie [18] described in 1926 the successful production of pellagra-like symptoms in rats, but most workers have encountered difficulties in the uniform production of dermatitis. The potency of the material assayed is generally based upon the rate of growth in unit time. Several workers have reported a lack of correlation between the failure of growth and the incidence of pellagra, but in spite of these observations the rate of growth has continued to be used as an index of potency.

In 1930, Norris and Ringrose [19] described the production of pellagra-like symptoms in chicks. Two years later Kline, Keenan, Elvehjem and Hart [20] demonstrated the uniform production of similar symptoms in chicks reared on a natural grain ration heated dry at 100° C. for 144 hours. When this method for vitamin $B_2$ assay became available, Koehn and I turned our attention to the isolation of $B_2$. In the spring of 1933 we had obtained a concentrate which showed a distinct greenish fluorescence and was highly active in the prevention of pellagra in chicks. At that time the first paper by Kuhn, György, and Wagner-Jauregg [21] on ovoflavin and the vitamin $B_2$ activity of this pigment became available to us. An attempt was made, therefore, to incorporate part of the method used by these workers into our procedure. However, all preparations of flavins and lumiflavin from liver extract proved to be inactive in the prevention of pellagra. Finally, it was demonstrated [22] that while the flavin was adsorbed on fuller's earth in an acid solution, the factor preventing pellagra in chicks remained in the filtrate. Upon further purification of the filtrate a practically colorless concentrate was obtained which proved active. In other fractions the flavin was removed by converting it to the lumiflavin and extracting it was chloroform without reducing the activity appreciably. The fluorescence due to the flavins in concentrates from liver extract was destroyed by exposure to sunlight or artificial light without altering the activity. Thus, the factor necessary for the prevention of pellagra in chicks is a chemical entity separate and distinct from hepatoflavin.

This introduces a very important question of nomenclature. The German workers have used vitamin $B_2$ synonomously with flavins without reservation. The constitution of flavins has been determined and a flavin identical with the naturally occurring one has been synthesized.[23, 24] It is true that Kuhn and his coworkers and others have obtained increased growth in rats by the addition of flavins to the Borquin-Sherman diet, which was devised for vitamin $B_2$ assay. However, improved growth could be demonstrated only after the addition of extracts from yeast treated with fuller's earth to remove the flavins. It is now clear that an extract prepared from yeast in this manner still retains its antipellagric properties.

Since these workers have used only growth in rats, and we have used symptoms of pellagra in chicks for assay, it seems logical to use $B_2$ for the factor remaining in the filtrate after

removal of the flavins. Of course, it is necessary to demonstrate that the pellagra in chicks is similar to the pellagra in humans before this term can be accepted without reservation. We have now produced black tongue in dogs, which most workers believe to be identical with human pellagra, and have found that flavins are completely inactive in the cure of this condition while the filtrate remaining after the removal of the flavins gives immediate alleviation of the symptoms and promotes normal growth on Goldberger's diet.

Very recently three independent groups of English workers reported results which are in complete agreement with our conclusion that flavins and the antipellagric factor are two distinct factors. Chick, Copping, and Edgar [25] found that the addition of hepatoflavin or lactoflavin to a basal diet deprived of $B_2$ restored the growth in rats to a small extent but was without effect on the characteristic florid dermatitis. The supplementary substance obtained from yeast extract had no effect in restoring growth but had a slight curative effect on the dermatitis. When the flavin and supplementary material were given together, growth and cure of the dermatitis resulted. György [26] found lactoflavin to have no connection with the pellagra-like dermatitis in 211 rats. He also found a combination of the flavin and a supplementary substance necessary for normal performance. He prefers to continue to use $B_2$ for flavins and introduces a new term vitamin $B_6$ for the supplementary substance. Harris [27] also found flavins to have no antipellagric action. He suggests that $B_2$ be used for the complex and that new names should be given the several constituents.

Since vitamin $B_2$ has always been associated with human pellagra and since we have shown that the flavin-free fraction from liver extract will cure black tongue in dogs, which is accepted as the analogue to human pellagra, we prefer to retain vitamin $B_2$ for the antipellagric factor. Flavins, which are undoubtedly essential in nutrition, need not be designated by a letter because their chemical constitution is now known. At least the designation may be delayed until the exact function of flavins is known. Other factors may be part of this complex because György [27] has recently indicated that his $B_6$ is not identical with the antipellagric factor.

## CONCLUSION

In conclusion we may say that the so-called vitamin B complex consists of at least 5 factors, $B_1$, $B_2$, $B_3$, $B_4$, and flavins. Much more work is necessary before we can speak definitely about the amount of these factors needed in the human diet and the use of these factors in the control of specific deficiencies. Our ideas concerning this group of vitamins will undoubtedly be changed to some extent by next year, but I hope that my brief survey will give you some idea of our knowledge of the vitamin B complex as it now stands.

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# Research

RESEARCH is mainly looking for things that are not there and attempting processes that will not occur. The layman has little notion of this. Experimental science is tireless fumbling and groping, or the laborious discrimination and comparison of detail. It is subject to innumerable disappointments in following trails that lead out into a boundless desert or up against barriers that it seems hopeless to try to scale. For the scientist does not make his own landscape, as do the poets, and even many philosophers, nor can he fly hither and thither at will, but he subjects himself to the tyranny of the natural phenomena or processes that he is observing. As Bacon says, he works "according to his stuff and is limited thereby."—James Harvey Robinson, *The Humanizing of Knowledge*, 1924.

# Vitamin Content of Important Foods in the Child's Diet*

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MOTHERS of today are food conscious. They are well aware that the foods which they give their children must be adequate not only in quantity but in quality. Through the continuous activity of many public health educational organizations, the true health story of foods and diets has gradually enlightened American parents as to the nutritive requirements of their children. Newest to arrive upon the scene of food essentials, are the vitamins. Mysterious and intangible at first, these elusive yet vital substances have at last yielded most of their secrets to chemists and physicians. The functions of each vitamin are now well understood and vitamin therapy is on a sound footing.

However, there has been much public misinformation concerning them. Propaganda for this or that food product or pharmaceutical preparation, injudicious advertising and an avalanche of vitamin claims for numerous foods, particularly baby and children's foods, have made mothers and even physicians and public health officials skeptical and wary of all products and foods claiming to contain vitamins. Newspapers, magazines, radio and semi-scientific lectures have all contributed to the confusion. As yet, few public health laboratories have seen fit to set up biological units to determine the vitamin potencies of the many preparations offered for sale in their jurisdictions. As a consequence, the public has had to rely on the truthfulness of manufacturers' claims. Of course, there has been a great deal of vitamin research carried on and reported in scientific journals, but much of this is still undigested for public consumption.

For these reasons, a short summary of some of our research findings at the Massachusetts State College on some foods of special importance to infants and children, may be of interest. Our data deal largely with vitamins C and D in milk, fruits, and vegetables, with some information on other vitamins. The methods used have been the standard U.S.P. biological assay technics with the exception of some of our most recent work on vitamin C, which has been carried on by use of the titrametric method of Tillmans [1] as modified by Bessey and King.[2]

## EXPERIMENTAL RESULTS

### MILK

Milk is the universal food of babies and young children. It is our most nearly perfect food. Among the essential nutritive factors which are present in insufficient amounts are vitamins D

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and C, also iron, copper, and sometimes iodine. Because of the high incidence of rickets in this country nearly all public health officials and physicians have recorded themselves as favorable to the fortification of milk with vitamin D. The 3 ways by which this is done are: (1) irradiation, (2) feeding the cow irradiated yeast, and (3) the addition to the milk of a vitamin D concentrate, such as the unsaponifiable fraction of cod liver oil or irradiated ergosterol. All these methods have now been in more or less common use for two or three years. There is real concern in the minds of many health officers, physicians, and parents as to whether it is safe to rely on these vitaminized milks to supply the vitaman D needs of children. Many recent clinical data have demonstrated that all the forms of vitamin D milk will effectively prevent rickets in normal infants, and in most cases will cure the disease as well. While nearly all health agencies are concerned over the reliability of these vitamin D milks, few do anything about it.

In Massachusetts, we have examined a large number of samples of vitamin D milks over a period of 2 years,[3] approximately 60 per cent of which were furnished by health officers (see Table I). The data are largely self-explanatory. Normal milk contains a small but relatively constant amount of vitamin D. Pasteurization, homogenization and canning do not significantly lower the vitamin D potency. While the number of samples is small, there is seen to be a slight increase in the vitamin D potency in the summer months. Two different lots of canned irradiated evaporated milk showed about double the potency of freshly irradiated milk; *i.e.*, when such milk is reconstituted, the vitamin D potency is equal to freshly irradiated whole milk. Only 2 per cent of the 245 commercially irradiated samples were seriously below the guaranteed potency of 135 U.S.P. units (50 Steenbock units) per quart. This indicates that production methods of this form of vitamin D milk are carefully controlled so as to insure a stable and constant vitamin content. While fewer samples of yeast and vitamin D milks were examined, 7 of the 8 samples tested contained at least 400 U.S.P. units per quart. One sample contained vitamin D but in lesser amount than 400 units. Of the 4 Vitex milks assayed, only 1 was seriously below the 400 unit level.

TABLE I

VITAMIN D IN MILK

| *Kind of Milk* | *No. of Samples* | *Vitamin D Average* U.S.P. Units | *No. of Samples Below Guarantee* | *No. of Samples* | *Vitamin C. Calculated Protective Level* c.c. |
|---|---|---|---|---|---|
| Raw milk, May–June | 4 | 27+ | .. | 3 | 48 |
| Raw milk, Oct.–Nov. | 3 | 20 | .. | 0 | .. |
| Pasteurized milk, autumn | 4 | 20 | .. | 2 | 62 |
| Homogenized milk, pasteurized, autumn | 2 | 20 | .. | 1 | 75 |
| Canned evaporated milk | 2 | 27+ | .. | 3 | 60 |
| Canned evaporated irradiated milk | 2 | 270+ | 0 | 0 | .. |
| Pasteurized irradiated milk | 245 | 135+ | 5 | 3 | 71 |
| Pasteurized fortified milk (Vitex) | 4 | 400+ | 1 | 1 | 68 |
| Certified metabolized (yeast) milk | 3 | 400+ | 0 | 1 | 42 |
| Pasteurized metabolized (yeast) milk | 5 | 400+ | 1 | 1 | 83 |

These results indicate that constant care is required to maintain the guaranteed potencies of vitamin D milk. State department of health laboratories or other official agencies should include the routine examination of these milks with their other activities.

### OTHER VITAMINS IN MILK

There is so little vitamin C in milk that until the recent introduction of the titration method for determination of ascorbic acid, it has not been possible to judge accurately the effect of pasteurization, homogenization, irradiation, etc., on the vitamin C content. In a few studies we have found that normal raw fresh milk is a very poor source of vitamin C. The calculated protective daily dose for a guinea pig is approximately 50 c.c. for summer milk. We have made no determinations on winter milk, but Hart, Steenbock, and Ellis [4] found the protective dose was 75 c.c.

Pasteurization by the holding process destroys from 20 to 60 per cent of vitamin C. The single test made on milk homogenized at 1,200 lb pressure showed practically no loss. King and Waugh [5] have shown that pasteurization by the Electropure or Stamvik processes causes no appreciable destruction of vitamin C. Hess [6] found a pint of fresh milk effectively prevented infantile scurvy. Probably a quart of pasteurized milk would be required. Lavaille,[7] in France, found no appreciable loss of vitamin C in canned evaporated milk. Our own results indicate that canned evaporated milk has a calculated protective level of from 35 to 80 c.c., or roughly the same as fresh milk.

There is no evidence that vitamin A is injured by the usual manufacturing processes. Vitamins B and G, according to Dutcher, Guerrant, and McKelvey [8] are injured somewhat by heat, but are remarkably constant in milk throughout the year. Pasteurization destroyed a maximum of 38 per cent of the vitamin B in milk. Krauss, Erb, and Washburn [9] found the loss of vitamin B due to pasteurization was about 25 per cent. While it is comforting to know that vitamins C, B, and G are present in milk, we do not ordinarily urge the use of milk because of their presence. Vitamins A and D are much more important in this food.

### VITAMIN C IN FRUITS AND FRUIT PRODUCTS

Fruits are usually given to infants and children because of their antiscorbutic activity and laxative action; hence we are concerned mainly with the vitamin C content. We have made many vitamin C assays using the standard Sherman guinea pig technic. During the present summer we have compared the new titration method for ascorbic acid [1, 2] with the biological assay and have found very good agreement in the case of most fruits and vegetables. We have used pure ascorbic acid as a standard and have verified previously reported findings that 0.5 mg. of ascorbic acid is equivalent to 1.1 c.c. of fresh lemon juice. This amount is fully protective against scurvy for a young guinea pig. Calculation of protective doses is therefore relatively simple if we know the ascorbic acid content of a food.

The data are presented in Table II. The high antiscorbutic potency of citrus fruits, tomatoes, strawberries, rhubarb, and certain apple varieties such as Baldwin, Northern Spy, Ben Davis, and Winesap, are fully demonstrated. The canned citrus [10] and tomato products retain their vitamin C remarkably well and may be used in place of the fresh fruit. The juices are almost as rich in vitamin C as the fruits. Home canned tomatoes are the equal of those commercially canned.[11] Fresh apple cider is a good antiscorbutic, but

TABLE II

VITAMIN C IN FRUITS AND FRUIT JUICES

| | No. of Samples | Protective Level for Guinea Pigs |
|---|---|---|
| Fresh orange juice | 4 | 1.2 |
| Frozen orange juice * | 2 | 1.4 |
| Reconstituted orange juice from concentrate | 1 | 1.8 |
| Canned orange slices | 2 | 1.3 |
| Canned orange juice | 2 | 1.1 |
| Fresh grapefruit juice | 2 | 1.3 |
| Canned grapefruit slices | 2 | 1.5 |
| Canned grapefruit juice | 4 | 1.5 |
| Fresh pineapple * | 1 | 8.5 |
| Canned pineapple * | 2 | 9.2 |
| Canned pineapple juice * | 1 | 8.0 |
| Fresh apples (21 varieties) | 34 | 3.5–25 |
| Fresh sweet cider (Baldwin) | 4 | 5–7 |
| Pasteurized or benzoated sweet cider | 4 | 20+ |
| Baked apples (Baldwin) | 2 | 4.0 |
| Home prepared apple sauce (Baldwin) | 4 | 30 |
| Commercially canned apple sauce | 2 | 36 |
| Fresh or frozen strawberries | 3 | 2.5 |
| Fresh blueberries | 18 | 5.5 |
| Frozen blueberries | 9 | 6.0 |
| Canned blueberries | 6 | 10 |
| Fresh cherries, Montmorency * | 1 | 16 |
| Fresh or canned Royal Anne cherries * | 2 | 24 |
| Fresh Bartlett pears * | 1 | 14 |
| Fresh tomatoes | 1 | 2–3 |
| Home canned tomatoes | 3 | 2–4 |
| Commercially canned tomatoes | 2 | 2.5–5 |
| Home prepared tomato juice | 6 | 3–4 |
| Commercially canned tomato juice | 13 | 2–7 |
| Home prepared tomato purée (concentrated to ½ volume) | 2 | 3 |
| Canned puréed tomato * | 2 | 3.5 |
| Commercially canned tomato soup | 1 | 5.6 |
| Cranberries | 6 | 3–4 |
| Whole cranberry sauce | 4 | 10–14 |
| Canned, strained cranberry sauce | 10 | 30+ |
| Fresh Worden grapes * | 1 | 16+ |
| Commercially bottled grape juice * | 1 | 20+ |
| Dried prunes * | 1 | 50+ |
| Canned prune juice * | 1 | 50+ |
| Fresh Elberta peaches * | 1 | 11 |
| Commercially canned peaches * | 2 | 12 |
| Fresh rhubarb | 5 | 2–4 |
| Cooked rhubarb sauce | 5 | 10 |

* Determined by titration method, using pure ascorbic acid as standard

preserved or bottled cider is poor. Baked apples retain their vitamin C content while apple sauce, either home prepared or the commercially canned product, has very little. Prunes and grapes show practically no vitamin C.

In summarizing these data it appears that the present custom of using citrus or tomato antiscorbutics is well founded and reliable. Our results show that other available fresh, frozen, and canned fruits or vegetables which are satisfactory secondary sources of vitamin C are blueberries,[12] strawberries,[13] asparagus,[14] apples,[15] and cranberries.[16]

### VITAMIN C STUDIES ON VEGETABLES

The use of fresh cooked, canned, and sieved (puréed) vegetables for infants and young children has been increasing. Besides the mineral and bulk values of these vegetables, the vitamins are of primary importance. Our work has been largely with vitamin C, although vitamin A has also been determined for a few vegetables. Both the Sherman guinea pig technic and the Bessey and King [2] direct titration of ascorbic were used. For most vegetables the latter method gives results entirely in accord with the animal bio-assay.

We have compiled data on fresh cooked, frozen cooked, canned, and canned sieved vegetables in Table III. In general our results are in agreement with those of Hoff [17] who showed that cooking and canning are very destructive to the vitamin C of vegetables. Peas, asparagus, lima beans, and spinach are excellent sources of vitamin C in the raw state but lose a large percentage of the vitamin during processing. Freezing is much less injurious to the vitamin C than canning, although vegetables are pre-cooked (blanched) to inactivate enzymes previous to freezing. Little additional loss of vitamin C occurs during the time the vegetable is held in freezing storage,

but slight additional losses occur when the frozen products are cooked. In peas, spinach, and lima beans, the loss due to freezing is 40–65 per cent after cooking, while those incurred in canning are 75 to 90 per cent. This does not mean that cooked or canned vegetables are not suitable sources of vitamin C, since in spite of the large losses incurred during the heat treatments a considerable amount of vitamin C remains. Nearly all the vegetables examined would be classed as fair to good antiscorbutics, even after heat treatment.

Sieved vegetables for baby foods have been prominently advertised and sold during the past few years. Data obtained on several brands of these products show that they are quite similar, though usually poorer in vitamin C than the plain canned vegetables. The claims on the labels were usually limited to a statement that the product contained the vitamin. So long as mothers do not rely on these products as potent antiscorbutics, there seems to be no cause for complaint from a public health viewpoint.

TABLE III.

VITAMIN C IN VEGETABLES AND CANNED SIEVED VEGETABLES

| | *No. of Samples* | *Protective Level Grams* |
|---|---|---|
| Fresh peas, cooked | 32 | 3.6 |
| Frozen peas, cooked | 40 | 4.6 |
| Canned peas | 13 | 8.8 |
| Canned sieved peas * | 4 | 14.6 |
| Fresh green asparagus, cooked | 9 | 8.0 |
| Frozen green asparagus, cooked | 9 | 8.0 |
| Canned green asparagus | 3 | 10.0 |
| Canned sieved asparagus * | 2 | 18.0 |
| Fresh spinach, cooked | 3 | 8.0 |
| Frozen spinach, cooked | 3 | 6.5 |
| Canned spinach | 5 | 7.5 |
| Canned sieved spinach * | 4 | 5.5 |
| Snap beans, cooked * | 1 | 11.0 |
| Canned snap beans * | 2 | 13.0 |
| Canned sieved snap beans * | 2 | 15.0 |
| Fresh lima beans, cooked | 5 | 3.3 |
| Frozen lima beans, cooked | 7 | 3.5 |
| Canned lima beans | 7 | 8.5 |
| Fresh carrots, cooked * | 2 | 12.0 |
| Canned sieved carrots * | 2 | 20.0 |
| Fresh beets, cooked | 2 | 10.0 |
| Canned sieved beets | 2 | 13.0 |

* Determined by titration method, using pure ascorbic acid as standard

### OTHER VITAMINS IN VEGETABLES

Hanning [18, 19] found canned, strained vegetables to be good sources of vitamins A, B, and G. Apparently the heat treatments in cooking and canning are not greatly injurious to these vitamins. We found vitamin A of asparagus and spinach was uninjured by either cooking or canning. Hence, aside from a partial destruction of the vitamin C, cooked and canned vegetables retain, for the most part, the other vitamins.

### SUMMARY

1. Fresh, pasteurized, and canned evaporated milks contain from 20 to more than 27 U.S.P. units of vitamin D per quart. Pasteurization and homogenization have no effect on the vitamin D potency of milk.

2. Of the 245 samples of irradiated milk assayed, only 5 were seriously below the 135 unit level.

3. One of the 8 samples of metabolized (yeast) milk and 1 of the 4 samples of fortified (Vitex) milk contained less than 400 U.S.P. units of vitamin D per quart.

4. Canned evaporated irradiated milk contained at least 270 units per quart.

5. Forty-three samples of fresh or manufactured fruit products, as well as the acid vegetables tomatoes and rhubarb, were examined for vitamin C content. In general, fresh and canned citrus fruits, tomatoes, and certain apple varieties (Baldwin, Northern Spy, Ben Davis and Winesap), as well as their juices, are excellent antiscorbutics.

6. Grapes, grape juice, peaches, cherries, prunes, pears, and certain varieties of apples (Tolman, McIntosh, Delicious and Jonathan), are poor sources of vitamin C. Fresh and canned pineapple as well as pineapple juice are of moderate value as antiscorbutics.

7. While raw, non-acid vegetables are usually good antiscorbutics, cooking and canning are very destructive to vitamin C. During a short cooking period, peas, asparagus, lima beans, and spinach lose 40 to 80 per cent of their vitamin C. The loss

in canning may vary from 60 to 90 per cent.

8. Cooked, frozen vegetables are slightly lower in vitamin C than fresh cooked, but are considerably higher than the canned vegetable which has been heated for the table.

9. Canned, sieved (puréed) vegetable baby foods have the same or lower vitamin C values than the unstrained canned vegetable. In spite of the destructive action of heat on vitamin C in vegetables, sufficient amounts are retained to be of distinct antiscorbutic value.

## CONCLUSION

This study furnishes experimental proof that the modern choice of foods for infants and young children, from a vitamin viewpoint, is well founded.

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THE aim of education is the getting to know on all matters which concern us the best which has been thought and said in the world; and through this knowledge turning a stream of fresh and free thought upon our stock notions and habits.—*Matthew Arnold.*

# Some New Emphases in Public Health Nursing*

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TO appreciate what may be new in public health nursing, let us look back to the good old days of 1930 and through the ensuing years to the present. Our mirrors for reflecting the pictures of these years are various studies and reports of governmental health and welfare agencies and private national organizations concerned with health and with public health nursing.

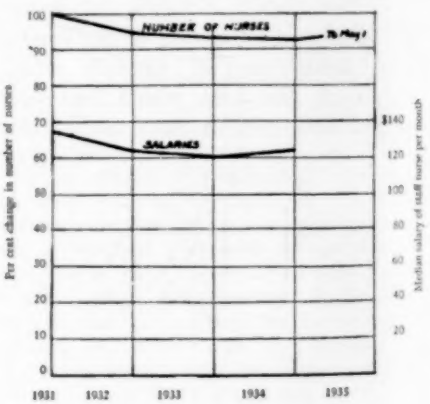
Before we look at the picture, however, it may be well to consider what public health nursing had to offer as safeguards against the onslaughts of the depression. There were 20,000 public health nurses in 1931 as compared with at least 60,000 needed then and now. Of these, 52 per cent were employed by official agencies and 48 per cent by private organizations. We had also the following printed statements of standards in the public health nursing field, *Objectives in Public Health Nursing*, manuals of procedure for both nurses and board members, *Minimum Qualifications for Those Appointed to Positions in Public Health Nursing, Outline for Appraisal of Public Health Nursing*, a detailed report on the method of computing the cost of a visit, suggested records and report forms. During the very heat of the fray in 1934, the *Survey of Public Health Nursing*[1] was published to show us how far we had put our standards into practice and how far we still had to go.

What, then, has happened to public health nursing? We have comparative figures on changes in personnel, salaries, the income and expenditures of private agencies, visits by public health nurses and visits by patients to clinics.

Figure I shows the changes in number of public health nurses employed and changes in salary. This is based on a comparison between the count of 15,915 public health nurses, exclusive of industry, as given in the National Organization for Public Health Nursing

FIGURE I

CHANGES IN NUMBER OF PUBLIC HEALTH NURSES AND IN SALARIES SINCE 1931




* Read before the Public Health Nursing Section of the American Public Health Association, at the Sixty-fourth Annual Meeting in Milwaukee, Wis., October 7, 1935.

Census of 1931,[2] the yearly review studies of the N.O.P.H.N.[3] made in 1933, 1934, and 1935, and the annual salary studies of the N.O.P.H.N.[4] In general, since 1931, there has been a loss of 5.4 per cent in total number of nurses employed which in actual numbers is 853.

Another glimpse of this same question of personnel is given in a comparison of the percentage of agencies reporting changes in size of staff. From 1932 on, more agencies reported decreases than increases until 1935 when for the period up to May 1 the percentage of reporting increases exceeds those reporting decreases.

Data on salaries paid to public health nurses are available for each year from 1932 through 1935[4] as shown in Figure I. The median salary is recorded, meaning that the number of nurses receiving less than that salary is the same as the number receiving more. For Health Departments and Public Health Nursing Associations (the private agencies) the median in 1932 was $135 a month. This dropped gradually to $120 a month in 1934 and in 1935 has been raised to $125. The median salaries of school nurses employed by boards of education and health departments ranged from $1,760 a year in 1932 to $1,400 in 1934 with an increase to $1,500 in 1935. We may therefore conclude that salaries reached their low level in 1934 and are on the upgrade but still 8 per cent below the 1932 level.

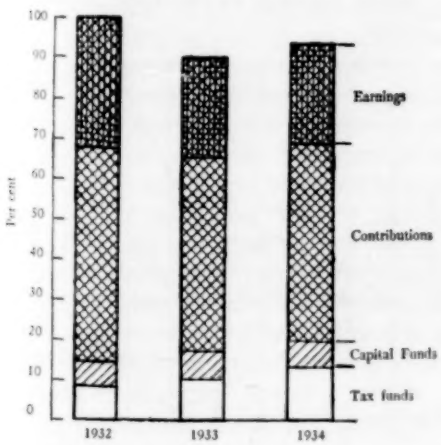
The total income and expenditure of agencies is an important index of the effects of the depression. Dr. Joseph W. Mountin shows the following picture of the average per capita expenditure by health departments[5] on basis of figures reported in the Inter-Chamber Health Conservation Contests: 1931—appropriations maintained, 1932—some reduction, 1933—drastic cuts with budgets approaching those reported for 1923.

Another study[6] indicates that the average per capita expenditure for public health in 1929 was $1.00 per capita per year, that it sank in 1934 to $.70. Contrast this with the $2.00 per capita expenditure generally recognized as a minimum for adequate health protection and with the fact that up to one-half of this amount is needed for public health nursing!

Unfortunately, as Dr. W. Frank Walker has pointed out in his article, Analysis of Public Health Expenditures by Geographic Subdivisions,[7] "it was not possible to isolate in health department budgets the cost of public health nursing." However, the N.O.P.H.N. has some valuable figures[3] regarding income and expenditures of a representative group of private agencies for the years 1932, 1933, and 1934. Income changes are shown in Figure II. In 1933 there was a decrease in income of 10 per cent from that in 1932. In 1934 there was an increase over the previous year of 2.6 per cent. Analyzing this income for per cent derived from various sources

FIGURE II

PER CENT CHANGE IN TOTAL INCOME AND IN AMOUNTS RECEIVED FROM VARIOUS SOURCES OF INCOME BY PRIVATE PUBLIC HEALTH NURSING AGENCIES—1932–1934



in 1932 and in 1934, we find that the per cent from tax funds increased from 9 to 11 per cent, capital funds from 6 to 8 per cent, and contributions from 53 to 55 per cent. Earnings from patients' fees and contracts for service were the only source that declined and this went down from 31 per cent in 1932 to 26 per cent in 1934. The percentage of the earned income paid by insurance companies in 1932 was 83 and in 1934, 77. From recent figures of the Metropolitan Life Insurance Company we learn that the expense for its nursing service to policy holders has taken an upward turn, increasing from 1934 to the first 8 months in 1935 by 10 per cent. It is interesting and significant to know that the percentage of private agencies receiving some tax support has steadily increased from 60 in 1932 to 69 in 1934.

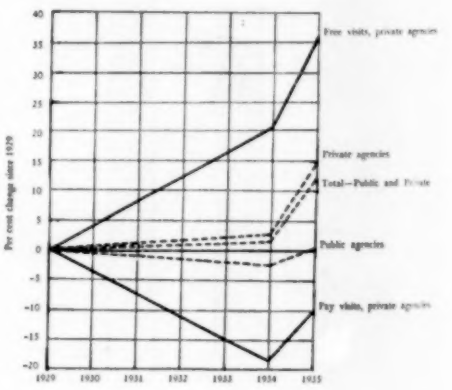
If the private agencies on the whole suffered a 10 per cent decrease in income in 1933, made up only by a 2.6 per cent increase in 1934, let us see how they "took it." The total decrease in expenditures in 1933 was 11 per cent and the increase in 1934 only 1 per cent. This would seem to indicate a conscientious program of budget balancing on the part of the private agencies. Salaries were 83 per cent of the total in 1932 and 82 per cent in 1934. Can we not say then that it was the nurses themselves who took the brunt of adjustment. Their salaries were the biggest budget items and the most vulnerable points of attack.

Briefly, we have the picture of 853 less nurses now than in 1931, a slight beginning at replacing that reduction; there was a considerable drop in amounts paid for salaries, with 1935 bringing a slight increase. Incomes in a group of private agencies fell 10 per cent in 1933 and were restored 2.6 per cent in 1934. The most important increase in budgets of the private agencies has come from additional tax support; the largest decrease has been in earned income from patients and from insurance contracts. In adjusting to these changes, the private agencies tried to balance their budgets chiefly by reducing staff, reducing salaries, and making all possible economies.

At the same time that all this has been happening, the economic situation among American families has brought increased need and demand for public health nursing service. Space does not permit a review of studies made of health and the depression. Suffice it to mention the reports of the U. S. Public Health Service and the Milbank Memorial Fund showing that there is 50 per cent more illness among the "poor" than among those in "comfortable" circumstances.[8] The Children's Bureau[9] reports the total relief expenditures from public and private funds in 120 urban areas to have risen from January, 1929, to July, 1935, from 4 to well over 60 million dollars. The trend as indicated by Children's Bureau charts is still upward.

FIGURE III

PER CENT CHANGE IN NUMBER OF VISITS BY PUBLIC HEALTH NURSES IN 13 PUBLIC AND 24 PRIVATE AGENCIES, JAN.–JUNE, 1929 TO JAN.–JUNE, 1935, AS REPORTED TO CHILDREN'S BUREAU, U. S. DEPARTMENT OF LABOR



We are indebted to the Children's Bureau for the best figures available as to the effects of the depression on the number of visits made by public health nurses.[10] Figure III shows the tremendous increase in number of home visits made by public health nurses. It is worthy of note that pay service has decreased and free service has greatly increased. An even more appalling increase is indicated in the number of visits by patients to clinics and health conferences where public health nursing service is involved. Changes in visits and cases are reported by the Metropolitan Life Insurance Company as follows:

VISITS AND CASES REPORTED BY VISITING NURSE ASSOCIATIONS TO THE METROPOLITAN DURING THE FIRST 8 MONTHS OF 1935, AND THE CORRESPONDING PERIOD OF 1934

| | *1934 Associations* | *1935 Associations* | *Per Cent Change* |
|---|---|---|---|
| Cases (Incl. Mat. & H.S.) | 253,519 | 274,997 | +8% |
| Total Visits | 1,442,952½ | 1,490,945½ | +3% |

The Metropolitan Life Insurance Company further emphasizes the situation which is making new demands on public health nursing. In its May 1934 *Bulletin*[11] the age distribution of the population was given as follows:

| | |
|---|---|
| 1,850 under 20 years | 52.5% |
| over 65 years | 2.6% |
| 1,930 under 20 years | 38.8% |
| over 65 years | 5.4% |

The June 1935 *Bulletin*[12] states that for the first time in 10 years the birth rate increased; in the previous 10 years this rate had dropped approximately 26 per cent, or an average of 2.6 per cent per year. Between 1933 and 1934 it rose 3 per cent, which may be just a temporary rise. Thus a changing age population and an increased birth rate raises for public health nursing agencies the problem of more nursing care for the aged and a greater volume of maternity and child welfare work.

These varying conditions make demands on all forms of health activities and all types of public health organizations. Public health nursing is but a part of the whole machinery. As such it has made many adjustments in actual content and program which are not so easily recorded as the statistical data given above. However, the Adjustments Committee of the N.O.P.H.N. through a series of questionnaires has tried to keep its "finger on the pulse" of program changes. It is not too much to say that public health nursing agencies have attempted to preserve a service of high standard and to adjust to the most economic and effective administration. According to our reports, there has been little change in nursing under boards of education. Under health departments and in the private agencies, public health nurses have given more time to clinics and more to bedside care with corresponding reduction in time spent in purely "educational" activities. However, this new distribution of activities has led to a deepening appreciation of the idea that every contact the nurse has with the family, whether in the clinic, school or home, should be educational and productive. There seems to be a better appreciation today that the nurse teaches best by "doing." Also the increase of clinic contact has two positive advantages: (1) The family takes the initiative in seeking clinic service. Presumably the family wants the service enough to come and get it. Too often in the past, families have relied on nurses to bring the service to their very doors. (2) The clinic contact from the public health nursing standpoint also saves the nurse's travel time and hence expense. Certainly home visits are and always will be necessary, but clinics and conferences in nurses' offices can be made increasingly educational and valuable.

Another change has been less routinized service in terms of spacing

of visits and a greater attempt to understand the individual needs of each family. We have learned much (and still have much to learn) from the mental hygiene field about human relations and family problems. The very problems themselves have made us turn to coworkers in related fields for help. Public health nurses have seen more mental distress; increased want; more nutritional disturbances; greater need for bedside care in the homes, especially for mothers; communicable disease cases, and the aged sick.

Inevitably, public health nurses with depleted ranks and more demand for service have looked for help. That help has been chiefly the families themselves. The nurses have had a new impetus to teach members of the families to live hygienically, to use preventive measures for the control of communicable diseases, and to care for each other when sick. Thus a great coöperative enterprise has been going on between public health nurses and the families they serve.

Three major lessons we have learned from our struggles during the depression are pointed out in *The Survey of Public Health Nursing* [1]:

First, to be better teachers of public health, nurses need better preparation in schools of nursing, in postgraduate courses, and through expert nursing supervision and teaching in the agencies employing them.

Second, our organization picture is confused and chaotic in many cities because too many agencies employ public health nurses. Our survey suggests that large cities experiment with but two agencies; one the health department whose nurses help in the control of communicable diseases, and the health education of all age groups; the other a private agency offering bedside nursing as a part of a family health service. One agency may be sufficient in small communities and rural areas.

Third, we increasingly need the help of laymen for interpretation and support of public health nursing service, whether that service be given by the public or the private agency.

Such is a sketchy picture of public health nursing since 1930. But this is not complete without turning on it the spotlight of the federal agencies that add new color. In 1933, the Federal Emergency Relief Administration through Rules and Regulations No. 7 [13] made it permissible for public relief agencies to provide bedside nursing to families on relief. Such nursing could be paid for by public relief funds and bought from whatever local agency offered the service. Thus nursing care in illness was formally recognized as a necessity along with food, clothing, shelter, and medical service. Also private agencies could be used. This may be one reason why the tax support of private agencies has increased. The N.O.P.H.N. was consulted by the F.E.R.A. in planning this program and was called into vigorous action by many states and communities in putting it into effect. Provision was made in Rules and Regulations No. 7 for the setting up of state advisory committees of the professions involved. As the federal plan was permissive rather than mandatory, there is much variation state by state, but the principles involved have been effectively carried out in many communities, and from the standpoint of public health nursing seem sound.

Entirely separate from Rules and Regulations No. 7, and quite different in purpose, are the three federal plans for putting the unemployed back to work. The Civil Works Program was launched in the fall of 1933. This was applied to nurses as well as to other types of the unemployed. Projects were set up and it is estimated that out of a total of 8,000 unemployed nurses in the country, 6,000 nurses were put to work. Of these some two-thirds

went into public health nursing although many had had no previous special preparation for this work.

Immediately the three national nursing organizations (the American Nurses' Association, the National League of Nursing Education, and the National Organization for Public Health Nursing) set up "safeguards" in which the F.E.R.A. coöperated. These were that

1. The qualifications of nurses be passed upon by a professional group of nurses.
2. Nurses be assigned where possible to existing agencies rather than setting up new agencies.
3. All nurses be under qualified nurse supervision.
4. Projects be selected in relation to community needs and the ability of the nurses to carry them out.

A dramatic picture could be drawn of overzealous ambitions, confusion, misunderstandings, etc. Suffice it to say, that on the whole much good has been accomplished. Tribute is due the advisory nurses of state health departments, the administrators, supervisors, field nurses, and board members of local agencies who plunged suddenly into the game of helping new and often raw recruits so effectively that harm was prevented, and much progress has been made.

C.W.A. and C.W.S. were shortly followed by nursing projects under state E.R.A.'s. I need only refer you to reports from 47 out of 48 states in *Public Health Nursing*[14] for a graphic description of their struggles. And today these struggles are going on under the Works Progress Administration. Fortunately, the number of unemployed nurses is lessened; fortunately the nurses in projects proved themselves; and fortunately the "safeguards" are more respected today than ever before.

However, with the changing emphasis from direct relief by the federal government to state and local initiative and responsibility for all who are in distress, public health nursing groups and their lay friends, in states and localities, have a new opportunity to explain again the fundamental principles of public health nursing, and to make public health nursing fit into the work program. There are many hazards to standards at the present time and many "new alignments" to be faced.

Out of all of this emergency service comes the hope, even though long deferred, of the Social Security Program. We rejoiced when in 1934 the U. S. Public Health Service appointed Pearl McIver as Associate Public Health Nursing Analyst to assist state health departments in the development of state-wide public health nursing services. We look forward to the day when the Children's Bureau too will have a public health nursing consultant for its maternity, child health, and orthopedic programs.

One of the most gratifying signs of the times is that the U. S. Public Health Service, the Children's Bureau, and the Health Department of the District of Columbia all have coöperated in setting up new federal civil service classifications for public health nursing positions which will guarantee the best possible leadership and set a fine example for other groups to follow.

Things are stirring in public health nursing. We are facing "new alignments." Closer relationships are developing between public health nursing and the medical profession. We are seeing a new place for ourselves in relation to social workers. We appreciate that public health nursing is not an entity in itself but an integral part of the whole health machinery. We realize that today we are more dependent than ever on an interested, informed, and generous public.

Many a rural area is aware for the first time of its need for public health

nursing service. Many cities realize their insufficiency. Agencies want to give better service and nurses want to be better prepared. There is much that is new in public health nursing. The future of this service requires a fine balance between allegiance to accepted standards and "fundamental principles" and an experimental attitude to adapt them to the changing and new needs of our present and our future day. May we always be willing to experiment!

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# A Retrogressive Trend

SINCE the war, the annual matriculation at medical colleges has shown a progressive increase which threatens to undermine the important reforms accomplished by the Council on Medical Education of the A.M.A. From 18,200 in 1925, the number of medical students has grown to close to 23,000 in 1935. This figure is not far removed from the enormous enrollments of the early part of the century.

An increase on this scale, which is not justified by any public need, must inevitably entail an impairment of the standards of medical education. Matriculates are chosen with less discrimination and the student body falls short of the scholastic and personal level achieved by more restricted admissions.

Fortunately, the number of schools has not kept pace with the growing matriculation and the colleges in existence are, on the whole, superior institutions; but their facilities are not equal to the sharp rise in enrollments. . . .—Editorial, *New York State J. Med.*, Oct. 1, 1935, p. 986.

# Immunological Application of Placental Extracts*

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MOST of our work with placental extract has been directed to the control of measles; so certain aspects of this disease should be discussed first in order to give an idea of the problems involved. The importance of measles is easily seen in the morbidity records of Massachusetts, for in 2 of the past 10 years there have been reported upward of 40,000 cases a year, and in none of the last 10 years has the number of cases fallen below 13,000. The actual number of cases of measles is undoubtedly larger than these figures indicate. It is true that the number of deaths from measles is by no means large, for the fatality rate has varied from 0.2 per 100 cases reported up to 1.2 per 100 cases reported, but there have been in Massachusetts about 1,500 deaths from this disease during the years 1925 to 1934.

The danger from measles lies in the complications, usually due to secondary infections, which may have a fatal outcome. Of these, by far the most important are bronchial pneumonia with its resultant empyema; and infections of the middle ear, either otitis or mastoiditis. Other dangerous but less frequent complications are tuberculosis, enteritis, noma, and encephalitis.

It has been known for some time that measles is most dangerous in children between the ages of 1 and 4 years, particularly if malnourishment, tuberculosis, or other acute or chronic illnesses are also present. Children of these ages should be protected against measles if it is at all possible. Protection is sometimes desirable even in those above the age of 4. Infants under the age of 5 months seldom contract measles unless perchance the mother has not had the disease.

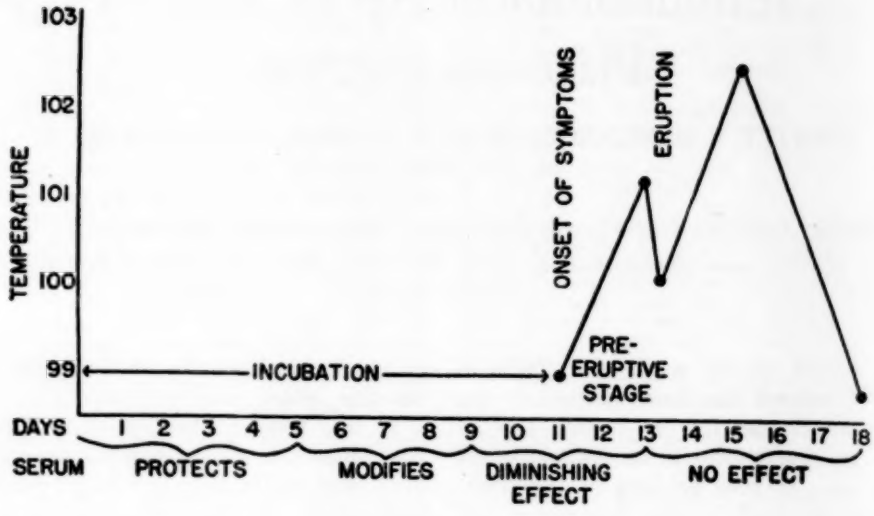
The control of measles by the ordinary public health measures of isolation, placarding, and quarantine is ineffective. The need of a practical method of active immunization is obvious, but so far no generally applicable active immunization method has been suggested, and until such a method is available, there is need of using such methods of passive immunization which are suitable and available.

The methods of passive immunization that have been suggested are the injection of convalescent serum, the serum or whole blood of immune adults, and finally, the one in which we are most interested at the moment, placental extract. Of these, adult immune

* Read before the Epidemiology Section of the American Public Health Association at the Sixty-fourth Annual Meeting in Milwaukee, Wis., October 10, 1935.

FIGURE I

*Usual Course of Measles*




serum and adult immune whole blood are distinctly less to be favored than either convalescent serum or placental extract, largely because the potency of the adult serum or blood tends to vary widely and the doses required for effective passive immunization are large, usually 15 to 20 c.c. for serum, and 30 to 40 c.c. for whole blood. In contrast to this the dose of convalescent serum is usually about 4 to 6 c.c., and of placental extract about the same. The difficulty with convalescent serum is that the supply is limited, and as measles is a disease of childhood, the possible donors of convalescent serum ars usually small, and only small amounts of blood may be safely taken from them.

Several factors influence the effective dosage in any of these products. First, there is the question of potency, and in this respect, convalescent serum and placental extract are usually preferable to either adult immune serum or adult whole blood. Perhaps next in importance is the time of administration during the incubation period. Any of these products if given early in the incubation period will very often prevent measles, but they are less efficacious in this respect if given later in the incubation period. This difficulty can be offset to some extent by using larger doses of serum when administration is delayed. Another factor is the age and weight of the patient, for in general the older the child the larger it is, and the larger the child the larger the dose of serum necessary to give an adequate concentration of antibodies to afford reasonably efficient passive immunization. Possibly as important as any of these factors is the degree of exposure. This has been brought out definitely both in McKhann's previous work and also in the recent papers by Schick and Karelitz.[1] All of these authors agree that the exposure sustained in such institutions as hospitals or schools is less likely to cause infection than is that to another child in the same family at home. Schick and Karelitz have extended this

TABLE I

PATIENTS TREATED FOR PREVENTION OR MODIFICATION OF MEASLES WITH ADULT SERUM, CONVALESCENT SERUM, AND PLACENTAL EXTRACT

| *Procedure* | *Number of Cases* | *Protected* | | *Modified* | | *Failed* | |
|---|---|---|---|---|---|---|---|
| Adult Serum | 584 | 329 | 56.4% | 139 | 23.8% | 116 | 19.8% |
| Convalescent Serum | 1,627 | 1,227 | 75.4% | 273 | 16.8% | 127 | 7.8% |
| Placental Extract | 1,628 | 1,138 | 69.9% | 417 | 25.6% | 73 | 4.5% |

Figures for adult serum and convalescent serum collected from the literature.

observation to show that the economic status of the home is also important, inasmuch as the exposure is more intimate and therefore more likely to give rise to an infection in the more crowded home.

By varying the factors of size of dose and time of administration, it is possible to prevent the disease entirely or to modify it. If the disease is prevented entirely, the immunity is purely passive and temporary, lasting from 3 to 6 weeks only. Such a method of administration is indicated for institutional outbreaks and for individual children temporarily exposed to the disease, who are debilitated, acutely or chronically ill, or tuberculous.

Of greater value from the standpoint of public health control of the disease is its modification by the use of serum. It is believed that an attack of modified measles will give an immunity which is usually permanent. The severity of the disease is reduced by modification to the point where it is no longer particularly serious. It is true that the incubation period may be somewhat prolonged, but this is generally not a matter of great moment. Complications and sequelae are few and usually trivial. Modification is indicated for exposed normal, healthy children. Figure I indicates the portions of the incubation period in which protection or modification of the disease may be expected to follow injection of serum or placental extract. Briefly, if serum is given in an adequate dose during the first 5 days of the incubation period, one may expect that the child injected will not develop the disease. If, however, the administration of serum or of extract is delayed until the 5th to the 8th or 9th day, modification of the disease is more likely. If the serum or extract is given on the 9th day or later, it may have little or no effect. This carries us up through the preeruptive stage of measles. Serum or extract given as a therapeutic measure after the eruption appears has no pronounced effect.

Table I shows the effect of adult serum, of convalescent serum, and of placental extract when given for protection or modification. These figures include both hospital and home exposures. The important point of this table is that the adult serum failed either to protect or modify about 20 per cent of the cases, convalescent serum failed in about 8 per cent, and placental extract in about 4½ per cent.

Table II gives a more detailed picture of the effect of placental extract. In the first line across the table is seen the result of extract given during the first 4 days of exposure for the purpose of protecting the child entirely against the development of measles. Sixty-four per cent of the children were protected, and a further 31 per cent showed a definite modification of the disease. In only 5 per cent was there no protection and no modification. The administration of placental extract to produce modification of the disease is a somewhat more difficult problem inasmuch as it is quite possible to give too

TABLE II

PLACENTAL EXTRACT FOR PREVENTION OR MODIFICATION OF MEASLES
INTRAMUSCULAR INJECTION

| *Intimate Exposure* | *Day of Exposure* | | *Protected* | *Modified* | *Failed* | *Total* |
|---|---|---|---|---|---|---|
| Given to Protect | 1–4 | No. | 171 | 83 | 14 | 268 |
| | | % | 63.8 | 31.0 | 5.2 | |
| Given to Modify | 5–12 | No. | 264 | 283 | 42 | 589 |
| | | % | 44.8 | 48.1 | 7.1 | |
| *All Exposures* | 1–12 | No. | 1,138 | 417 | 73 | 1,628 |
| | | % | 69.9 | 25.6 | 4.5 | |

The figures for intimate exposure include children exposed at home to a brother or sister, or to a roommate in a boarding school, under which conditions 90 per cent of non-immune children may be expected to acquire the disease. In addition any child exposed at school who develops measles has been transferred to the intimate exposure group. This increases the entire number of failures in this group, but it seems to be fair in that it shows they actually were exposed to the disease.

much extract, or give it too early, and so get complete protection, as well as to give an insufficient amount or give it too late, and so fail to get any modification at all. In the present group of 589 children only 48.1 per cent showed a definite modification of the disease, but a further 45 per cent were completely protected. In 7 per cent there was no protection or modification. It should be remembered that the foregoing figures refer to children who were intimately exposed to the disease. If we include all children who received extract, 1,628, the proportion protected entirely is 70 per cent, a further 25 per cent showed modification of the disease, and 4.5 per cent showed neither protection nor modification. These figures are included here chiefly to show that the percentage of failures is less when all types of exposures are included.

The administration of placental extract intramuscularly is followed in some instances by local and general reactions. Table III shows that somewhat more than 60 per cent of the children have no reactions of either type following the administration of extract; slightly less than one-third have a local reaction; about one-eighth have a febrile reaction of some sort or other; while only about 4 per cent suffer a local reaction great enough to be classified as moderately severe; and in only 2.5 per cent does the temperature go above 101°. Since some children had both types of reaction it seems safe to say that in only about 5 per cent was there a reaction that by any classification could be considered a moderately severe one.

The practice in certain parts of the world of feeding children dried placentae as a remedy for various ailments suggested the use of our placental extract by mouth. We have records of 109 children (Table IV) intimately exposed to measles to whom

TABLE III

REACTIONS

| | | | *Local* | | *Febrile* | |
|---|---|---|---|---|---|---|
| | *Total* | *No Reaction* | *Total* | *Moderately Severe* | *Total* | *T = 101°+* |
| No. | 1,533 | 961 | 485 | 65 | 189 | 39 |
| Per Cent | | 62.7 | 31.6 | 4.2 | 12.3 | 2.5 |

TABLE IV

PLACENTAL EXTRACT
ORAL ADMINISTRATION

| | *Prevention or Modification of Measles Susceptible Patients, Intimately Exposed* | | | |
|---|---|---|---|---|
| | *Total* | *Prevented* | *Modified* | *Failed* |
| Given to Prevent | 33 | 14 | 8 | 11 |
| Given to Modify | 76 | 16 | 40 | 20 |
| | 109 | | | |

placental extract was so administered. Of these, 33 were given the extract to prevent the disease, and in 14 this was accomplished. In 8 others, modification resulted, but in 11 no benefit was obtained. In a group of 76, to whom the extract had been given with the idea of modifying the disease, it was entirely prevented in 16, modified in 40, and failed either to modify or protect in 20. As might be expected, the results of oral administration were not so good as intramuscular injection, but, on the other hand, the figures indicate that a certain amount of measles antibody will pass from the gastrointestinal tract and bring about a definite passive immunity in some individuals.

Another evidence of the absorption of antibody from placental extract given by mouth is that 23 patients with a positive Dick test have been rendered Dick negative by placental extract so given. The duration of the negative stage has been variable but was as long as 18 days in 13 individuals. The importance of this procedure in the prevention of scarlet fever remains to be determined.

In addition to the evidence of antibodies shown by human experiments, there is also evidence from animal experiments that the extract contained diphtheria antitoxin, and an antibody against poliomyelitis. There is no need of discussing these antibodies here.

The method of preparing placental extract has not been sufficiently standardized to lead one to believe that the most satisfactory method has been found. Various fractions have been made separating the placental extract into various globulins; but it does not appear as yet that these various fractions differ materially so far as their content of measles antibody is concerned. It has seemed that the nearer one stays to a whole extract, the more efficacious a given dose of the material will be for measles prophylaxis. On the other hand, the whole extracts are extremely difficult to filter. It is obviously desirable—if not essential—that the final product shall be passed through a Berkefeld filter to insure its sterility, and this process must be carried out even at the risk of losing a certain amount of antibody. It is much better to use a dose of 5 or 6 c.c. of material that has been filtered than to attempt to give unfiltered material in a dose of 2 or 3 c.c.

The only direct method of determining the potency of placental extract is to use each lot experimentally for its ability to prevent measles. Such indirect methods as the determination of diphtheria antitoxin content of the original material and of the fractions made are not satisfactory. The source of error here is that the diphtheria antitoxin is apparently segregated almost entirely in the pseudoglobulin fraction, but measles antibody is more generally distributed among all the globulins. There was an indication in the earlier part of the study that the nitrogen content of the extract was about as satisfactory as any other method. The figures for this have not been compiled on the later cases but it is known that the extracts with a higher nitrogen content are more effective than those that are too low. It is evident that a final satisfactory method of making the extract and of determining the proper dosages depends upon the solution of this fundamental problem of potency testing.

CONCLUSIONS

1. The use of placental extract in the prevention and modification of measles offers at the moment the best hope of giving us some control of this disease.

2. Placental extract appears to be more efficacious in these respects than convalescent serum; and convalescent serum, in turn, is more efficacious than adult serum or whole blood.

NOTE: This study was supported in part by a grant from the Commonwealth Fund of New York.

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# Humanizing Knowledge

AT present so-called "serious" books, even when they pretend to be of a popular nature, are rarely written exclusively for the general reader. Scholars and men of science almost always write more or less unconsciously for one another. This is a natural outcome of their training. They must prove their preparation to deal with the subject in hand. They cannot forget their fellow workers in the field, and properly wish to enjoy the reputation of scientists and scholars and not that of mere popularizers. They are so accustomed to technical terms that they use them without realizing how few of their readers can be expected to understand them. This is the result not of a love of pedantic display but an acceptance of the rules of the game as they have been taught it. . . . There is a heavy prejudice in learned circles against the popularizer. Those who are disinclined, or mayhap unable, to write plainly and pleasantly for the layman, are prone to denounce all attempts to popularize knowledge as vain or as mere expedients to keep the pot boiling.—James Harvey Robinson, *The Humanizing of Knowledge*, 1924.

# Recent Experiences in Scarlet Fever Control*

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THIS paper is being presented not so much because the writer has any new scarlet fever control measures to offer, but rather for the purpose of reporting certain experiences following the extensive use of well known control measures during a scarlet fever epidemic in Milwaukee. Even most of the experiences recorded herein are not new, but very similar to those reported by others.

It is necessary for me to limit this report almost entirely to statistics, personal observations, and conclusions, without describing procedures in detail or presenting all reasons for conclusions.

The scarlet fever epidemic began in January, 1934; abated temporarily during the latter half of July; recrudesced rapidly in September; and reached its peak for the year in October with 1,041 new cases reported.

The 1935 peak was in January, when 1,407 new cases were reported, which number might have been exceeded in February if additional control measures had not been taken. During 1934 there were 5,964 cases of scarlet fever reported with 20 deaths. During the first 6 months of 1935 there were 4,541 cases and 24 deaths reported.

When it became apparent during the early months of 1934 that Milwaukee was to be visited by one of its periodic scarlet fever epidemics, immediate and serious consideration was given to all the available scarlet fever control measures.

### IMMUNIZATION

After a thorough discussion of immunization with various committees of the County Medical Society, the Health Department with the approval of the County Medical Society, decided to immunize children in highly infected schools.

Dick testing to discover the susceptibles was immediately started in 12 public and parochial schools with an enrollment of approximately 10,000. The positive reactors were started with the 5 doses of toxin recommended by the Dicks: 500, 2,000, 8,000, 25,000 and 80,000 skin test doses at weekly intervals. Immunization was also offered by many private physicians as well as by the various Health Department clinics. Dick tests only were given to children in 7 additional schools and all reactors were referred to the family physician or Health Department clinics. As the disease spread, immunization was started in 6 additional schools, with an enrollment of approximately 5,000.

The work was started in 12 schools in March, 1934. The 6 additional schools were Dick tested and immunized during May, 1934. In October, 1934, 3 additional schools with an en-

* Read before the Health Officers Section of the American Public Health Association at the Sixty-fourth Annual Meeting in Milwaukee, Wis., October 7, 1935.

rollment of 2,240 were immunized. Seventeen thousand, five hundred preliminary Dick tests were made in schools and Health Department clinics, of which approximately 66 per cent were positive and 34 per cent were negative. Approximately 6,000 out of 9,000 children who started immunization completed the 5 doses. Re-Dicks of approximately 5,700 children receiving 5 doses of Dick toxin, gave 93½ per cent negative and 6½ per cent positive reactions. A 6th injection was given to approximately 200 children who had shown a positive re-Dick.

Since immunization against scarlet fever on a large scale was a new procedure in Milwaukee, it was deemed advisable to take the following precautions:

1. Every child was given a medical inspection before it was given its first dose of scarlet fever toxin. Children with chorea, rheumatism, heart disease, asthma, eczema, and other allergic ailments, were not immunized.
2. Every child had its temperature taken before each dose of toxin in order to exclude those that might be ill. At first a temperature of 99.6° was the maximum permissible, but this temperature was so common among the children that the maximum was soon raised to 100° F.
3. Whenever possible, all immunization work in schools was done in the afternoon. Some children immunized during the forenoon vomited during the afternoon and upset the entire classroom.
4. When immunization treatments were given in the morning, the school nurse remained at the school during the afternoon.
5. A nurse and doctor were on duty in school on the day following immunization for the purpose of inspecting rashes and other signs of reactions.
6. Printed notices were given to parents at the time of the first injection advising them of some of the reactions that might occur and assuring them that there would be no cause for alarm.
7. Every child absent from school following an immunization treatment was visited by the school nurse.
8. Since all children, no matter how severe the reactions, made a complete recovery, it was finally decided not to have the nurse follow up such cases in the homes. Whenever possible, school immunization clinics were conducted on a Friday afternoon to reduce school interference to a minimum.

### REACTIONS

By interviewing pupils, teachers, and parents, nurses, obtained as much information concerning reactions as possible. Reactions were classified as: severe systemic, moderate systemic, mild systemic and local reactions. Children with a temperature of 102°, prostration, vomiting, and diarrhea were reported as having severe reactions; those with lassitude, a noticeable rise in temperature, some nausea and vomiting, rash, and muscular pains, as having moderate reactions; and those with a rash and a slight rise in temperature, as having mild reactions. Local reactions consisted of redness and swelling of the arm and some local pain.

According to this classification, the average percentage of reactions for the 5 doses is as follows: severe systemic 3 per cent, moderate 15 per cent, mild 16 per cent, local reactions 23 per cent, and no reactions 43 per cent. The 3rd and 4th injections were followed by the most severe reactions. Two or three children who received the larger doses of toxin by mistake, showed no unusual reactions. All children recovered completely from all reactions, and most of them within 24 hours. About 20 per cent of the children developed a rash after the 2nd, 3rd or 4th injections.

Parents as a rule did not worry about reactions when forewarned. Health departments and physicians who have not the confidence of parents, will find it more difficult to immunize children against scarlet fever on account of the many severe reactions.

### RESULTS

The immunization of 6,000 children in a city of over 600,000 population

cannot be expected to check a city-wide scarlet fever epidemic, although such immunizations did not slow up the epidemic temporarily. The immunization work immediately controlled scarlet fever in those schools in which a large percentage of children accepted immunization. The immunized schools were almost completely free from scarlet fever during the year 1934, after the 2nd injection of toxin. During 1935, scarlet fever again occurred in these immunized schools among the kindergarten and 1st grade children who did not attend school in 1934 when immunization was done.

Schools with an attendance of 14,286 children in which immunization was done, had 1,102 cases of scarlet fever from January 1, 1934, to July 1, 1935. Similar unimmunized schools with the same attendance had 1,550 cases during the same period.

Twenty-four cases of scarlet fever occurred among 800 children who had only 1 dose of Dick toxin—14 within the first week after the injection. Nine children of 600 who had 2 doses; 12 of 900 who had 3 doses; 2 of 740 who had 4 doses; and 14 out of approximately 6,000 receiving 5 doses of toxin, contracted scarlet fever. Thirteen of the 14 came down with scarlet fever several months after they had been immunized. Nine of the 14 were verified by Health Department diagnosticians. All of them had had negative re-Dicks. Thirty-six children with negative Dick tests and without immunization treatments contracted scarlet fever. Twenty-four of these contracted the disease 3 months after having had a negative Dick. The scarlet fever rate for completely immunized children is about 2.3 per 1,000, while the rate for the elementary school population of 87,000 is approximately 60 per 1,000.

It should also be mentioned that 5 of the 14 cases, among completely immunized children, were secondary cases in families. Children who were immunized against scarlet fever had approximately the same percentage of hemolytic streptococci carriers among them as did the non-immunized children. This percentage was 20 in the immunized children and 18.5 in the non-immunized—all in the same school-rooms.

Scarlet fever in children's institutions in the city as well as in the county of Milwaukee was effectively controlled by means of the Dick test and scarlet fever toxin. If the immunization program started in March, 1934, had been continued until all schools had been immunized, there is every reason for believing that the epidemic would have been controlled much sooner than it was. A larger immunization program in schools was not conducted due to lack of funds and lack of support on the part of a large percentage of family physicians.

### NOSE AND THROAT CULTURES

Another procedure which the Milwaukee Health Department adopted during its campaign, was the culturing of noses and throats for hemolytic streptococci. All children in rooms that had more than 2 cases of scarlet fever reported within 1 week, were cultured. Later on, kindergarten and 1st grade rooms were cultured whenever 1 case of scarlet fever occurred. Children who were absent from school 3 or more days were visited by the nurse and cultured. Such absentees were isolated at home for 10 days if found to be carriers. Homes of carriers were not placarded but the Police Department assisted the Health Department most successfully in keeping carriers at home.

Approximately 6,000 children of 25,000 cultured, were found to be positive for hemolytic streptococci. Absentees averaged about 25 per cent

positive, while room cultures averaged 22 per cent. It is not easy to determine the value of this tremendous amount of culture work. After culturing for several weeks during the spring of 1934, it was decided that the exclusion from school-rooms of hemolytic streptococci carriers was not of sufficient value as a control measure to justify its continuance.

This decision was based on the fact that the number of new cases reported did not show any decrease. Almost immediately, however, when the procedure of culturing infected rooms was discontinued, the number of cases increased very rapidly. Children who were excluded from school as carriers show a scarlet fever rate of 19 per 1,000 for the 10 day exclusion period; children not excluded because negative for hemolytic streptococci have a scarlet fever rate of 21 per 1,000 for the 10 day period after their cultures were taken. This, of course, would lead one to believe that children with positive throats were less apt to come down with scarlet fever during the 10 day exclusion period than those with negative throats remaining in school.

Families having scarlet fever carriers, had a scarlet fever disease rate of 11 per 1,000 for other members of the family during the 10 day exclusion period, compared to 5 per 1,000 in families where the school children had negative throat cultures. It would seem, therefore, that the advantage, if any, of excluding scarlet fever carriers from the classroom is not in having them out of school while they are coming down with the disease, but rather to eliminate them for a 10 day period as carriers.

The percentage of negative and positive cultures not only seems to vary according to classes and schools, but also according to the nurse taking cultures. In taking cultures of former scarlet fever patients, individual nurses varied from 5 to 60 per cent in obtaining positive cultures. The carriers in various groups of former scarlet fever patients are as follows: in the 90 per cent apparently in good health, 40 per cent; in the 20 per cent that had their tonsils removed, 40 per cent; in the 30 per cent that had congested throats and diseased tonsils, 46 per cent; in the 2.5 per cent apparently in poor health, 55 per cent.

In spite of the questionable value of culture taking as a scarlet fever control measure, the Health Department decided to culture infected rooms again when the disease seemed to be beyond control, in January, 1935. After culturing rooms for several weeks and excluding all carriers, a very slow gradual decrease of cases was noticeable. However, the improvement was not sufficient to inspire much confidence in the procedure. My personal opinion is that a certain number of exposures are prevented through the isolation of hemolytic streptococci carriers, and during an epidemic such a procedure is justifiable even though it is very time consuming. Due to the tremendous number of hemolytic streptococci cultures examined, including the preparation of media and other necessary supplies, it was not possible with the available staff to determine the specificity of the hemolytic streptococci, by serologic, biochemical, or toxicogenic reactions.

### QUARANTINE

The value of quarantine during a scarlet fever epidemic in a large community is becoming more questionable every year. I am wondering whether absolute quarantine of entire families for scarlet fever should not be put in a class with fumigation, in which the public and health officers had so much confidence a few years ago. No one will deny that quarantining of scarlet fever patients will prevent some ex-

posures, and at least delay some infections, but during an epidemic it is almost worthless, as far as tangible results go. The quarantining of entire families for several weeks is not only a great inconvenience, but also such a tremendous economic loss for health departments as well as the families, that I am beginning to wonder whether the results justify the effort and expense. The state law in Wisconsin requires that scarlet fever cases be quarantined at least 28 days from date of report. In November, 1934, the State Board of Health gave the Milwaukee Health Department permission to shorten this quarantine period to 21 days for mild cases having two consecutive negative nose and throat cultures. Since a large majority of the cases were very mild, it happened that approximately 70 per cent of all patients were eligible for 21 days release cultures; 32 per cent had negative cultures within 24 days, an additional 24 per cent in 28 days, 15 per cent were positive and 29 per cent were not cultured. This shortening of the quarantine period increased the capacity of the isolation hospital and in that way helped prevent additional cases in homes.

According to a special study, 56 secondary cases developed within 2 weeks after release from quarantine of 2,828 cases; 1,142 cases released in 3 weeks had 30 secondary cases, or 2.7 per cent; 1,457 cases released in 4 weeks had 19 secondary cases, or 1.3 per cent; 229 cases released in 5 weeks and over had 7 secondary cases, or 3 per cent. Quarantine regulations were enforced more rigidly than during normal times. Daily lists of quarantined families were sent to the Police Department who kept a very close watch on all such homes.

It is generally believed that quarantine during an epidemic is not so effective as it should be on account of there being too many undiagnosed and unreported cases that are responsible for the continuance of the epidemic. This is partly true, yet the undiscovered cases alone cannot account for many of the unusual experiences associated with scarlet fever. Scarlet fever is endemic in many communities and epidemic every few years. Such endemics and epidemics can only be explained on the basis that every large community has a high percentage of susceptibles as well as carriers. By means of the Dick test it is possible to determine the percentage of susceptibles in any community. By means of nose and throat cultures, we can, at least to some extent, determine the number of hemolytic streptococci carriers.

In culturing the noses and throats of former scarlet fever patients on 2 consecutive days, we found approximately 43 per cent positive for hemolytic streptococci. This percentage did not seem to vary much in patients who had been released from quarantine, 1, 2, 3, and 4 months previously. Forty-three per cent of carriers in former scarlet fever patients must be given some consideration regardless of whether we are dealing with a scarlet fever hemolytic streptococcus or some other strain.

It can readily be seen that very little is gained by quarantining a patient while acutely ill in bed for 3 or 4 weeks, and then releasing him when he is well enough again to mingle with the public, even though he may be just as infectious after his release as he was during quarantine. This high percentage of carriers among former scarlet fever patients accounts for many of the hitherto puzzling experiences. During the latter part of September, 1934, when scarlet fever started up like a conflagration, we were inclined to believe that many unreported cases during the summer months were responsible for this tremendous increase.

While we know that a few children

who had only recently had unreported scarlet fever probably did return to school, we also know that the number was not sufficient to account for the explosive outbreak soon after schools opened. The increase no doubt was due to the fact that there was still a large percentage of children susceptible, and hundreds who had had scarlet fever during the previous months were still carriers of virulent scarlet fever hemolytic streptococci.

This large percentage of carriers among former patients explains many secondary cases months after the original case occurred. This also accounts for the fact that health authorities find it difficult to agree upon the length of quarantine. It can readily be seen that if a large percentage of these patients are infectious for months after their acute illness, it does not make a great deal of difference whether they are released at the end of 2, 3, or 4 weeks. The only difference is that some exposures will be delayed a week or two longer, but not entirely prevented by quarantine. Releasing by cultures cannot be considered too satisfactory, although I believe that it is an aid in keeping in some carriers a week or two longer. Approximately 25 per cent of all patients who showed 2 consecutive negative cultures when released, again had positive cultures at least once during the following 5 months. Only 15 per cent of positive cultures changed to negative within 5 months after the patient was released from quarantine.

While I realize that most of the statistics based on cultures for scarlet fever hemolytic streptococci are of questionable value, nevertheless, when such statistics fit into our epidemiological experiences, we should not hesitate to give them consideration.

### CLOSING OF SCHOOL-ROOMS

In spite of the Health Department's efforts to control the epidemic with immunization, culturing, and quarantining, it became more threatening every day. The situation appeared so critical that only drastic action could prevent the loss of many lives. Scarlet fever cases were being reported at the rate of approximately 300 per week, and measles had reached 600 per week. Several children had died with a combination of scarlet fever and measles.

After a conference with representatives of schools, churches, theatres, the Association of Commerce, and the medical profession, it was decided to isolate all children under 7 years of age in their homes for 4 weeks. This was later extended to 6 weeks.

The reasons for isolating this age group are obvious, and I will not take time to mention them. The order of the Health Department excluding children under 7 years of age from schools, churches, theatres, Sunday schools, and all other public places, with the exception of stores when accompanied by parents, went into effect February 18, 1935. Some of the more important results obtained are as follows:

1. Scarlet fever, measles, German measles, and chicken pox continued to increase for the length of their incubation periods, namely, 1 week for scarlet fever and 2 weeks and slightly over for measles, German measles, and chicken pox. This proved that very few cases, if any, were unreported as soon as these children left school. Parents were scarlet fever minded and very few of them failed to call a doctor when the younger children showed signs of illness.

2. The percentage of scarlet fever in children under 7 years gradually dropped from 34 to 18 of the total cases reported. This low percentage continued several weeks after the children again returned to school, but gradually went up to its normal by the time schools closed in June. Forty per cent of scarlet fever in the isolated children could definitely be traced to other scarlet fever patients, over 7 years of age, in the home.

3. The total number of new scarlet fever cases reported began to decrease toward the

end of the first week of the ban and continued to decrease quite rapidly from 300 per week to 51 at the end of the school year.

4. Measles, like scarlet fever, showed a large total decrease at the end of the incubation period and also a large percentage decrease in children under 7 years of age. The decrease in rubella was not quite so spectacular as that in measles because this is a much more common disease among adults than is measles.

Chicken pox, which was very low when the ban went into effect, decreased to an insignificant number. The decrease in scarlet fever, measles, German measles, and chicken pox during this isolation period was not general throughout the state or in communities near Milwaukee. While these diseases decreased in Milwaukee, they were increasing throughout the state. Some of the smaller communities reported more measles and chicken pox in their weekly reports to the State Board of Health than did the City of Milwaukee.

5. At the end of 6 weeks, when approximately 20,000 children under 7 years of age returned to school, there was no significant increase in cases of the diseases mentioned before. Had some cases been covered up, the opening of schools would have uncovered them. Three weeks after the children returned to school, measles, German measles, and chicken pox began to show an increase. During February, 1,569 cases of measles were reported; 1,159 in March, 914 in April, 1,475 in May, and 2,046 in June. Ordinarily during an epidemic the peak in measles is in April. This year it occurred in June. By postponing measles in hundreds of children until warmer weather appeared, it is probable that some lives were saved.

During the first 3 months of the year, there were 3,500 cases of measles with 5 deaths. Since that time up to July 1, there have been reported over 4,400 cases with only 2 deaths. While the closing of an entire school system in a community may be neither practical nor effective, nevertheless, there is no doubt in my mind about the practicability and effectiveness of isolating children under 7 years of age during a serious epidemic. By taking almost 25 per cent of the elementary school population and almost 50 per cent of the total child population effectively out of circulation, any community can at least temporarily check epidemics of childhood diseases.

Children under 7 years of age are the most susceptible and the most exposed to contagious disease. They are the foci of most epidemics. It must not be forgotten, however, that the isolation of children under 7 years of age must be carried out just as intelligently and scientifically as any other epidemiological procedure. To obtain satisfactory results, children must be isolated for at least 1 month and preferably 6 weeks to 2 months.

School and health authorities have so many times stated that schools with medical and nursing supervision are the safest places in the world for children, that they are apt to believe it regardless of what may happen to the children during an epidemic. There is nothing gained by assuming that nurses and doctors can pick out all scarlet fever cases and carriers by daily or weekly classroom inspections or home visits, when we know that this can only be done when children have perceptible signs or symptoms of the disease.

## CONCLUSIONS

1. Immunization against scarlet fever with 5 doses of Dick scarlet fever toxin, is both effective and safe. Even children having only 2 doses had a case rate of 15 per 1,000 compared to 60 per 1,000 for the unimmunized school children. Fear of reactions no longer justifies the opposition of private physicians and health departments to scarlet fever immunization.

2. Nose and throat cultures for the control of scarlet fever carriers may prevent some exposures and infections, in spite of the many uncertainties of this procedure.

3. Strict quarantine of scarlet fever patients prevents neither endemics nor epidemics, because too many patients remain carriers after release from quarantine. An absolute quarantine of entire families is probably responsible for more additional cases than the proper isolation and quarantine of only the patient. Scarlet fever quarantine is based more on tradition and expediency than on scientific facts.

4. The strict isolation of all children under 7 years of age for 6 weeks during a scarlet fever epidemic not only reduces the number of scarlet fever cases, but also aids in the control of other childhood contagious diseases. The permanency of this improvement depends upon the percentage of immunes produced by the epidemic and immunization.

Public health officials have reason to point with pride to achievements in typhoid fever, smallpox, and diphtheria control, but when it comes to the control of scarlet fever, they have been too easily satisfied with large and attractive isolation hospitals and the annual imprisonment for a period of 3 to 6 weeks of thousands of our most law abiding families.

More money for immunization and less for contagious disease hospitals should be the slogan of all progressive health departments.

## The Will Rogers Memorial Fund

THE press has carried the report that, among thousands of suggestions made by contributors to the Will Rogers Memorial Fund, more persons have suggested that a hospital be founded in his memory than any other plan. Among the suggestions sent to the trustees is that for a well rounded health center which might conceivably represent the fine human qualities of Will Rogers fully as well as any hospital. Through a health center people might be kept well enough to enjoy fully the wit and humor for which he was so noted.

Would it not be a desirable direction in which to attract public interest if health workers everywhere in making contributions to this fund would pass along the suggestion for some activity related to the health program, such as this health center?

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## DR. PARK IS AWARDED THE ROOSEVELT MEDAL

IT is not medals, or public episodes of recognition which give distinction to such persons as Dr. William H. Park, but the enduring appreciation they have won from their professional colleagues. And yet there is for all of us a glow of confidence in the essential rightness of matters in our contemporary life when such a physician is singled out from the many contributors to science for the honor of the Roosevelt award on October 27, the 77th anniversary of the birth of Theodore Roosevelt.

Embryo-laryngologist, microscopist, bacteriologist, sanitarian, medical educator, publicist, teacher of a long succession of health commissioners, crusader for child life, consulted by half the world, and held in affectionate regard by every physician so fortunate as to know him, Dr. Park has earned any and all distinctions which may come to him.

The medical literature of almost a half century contains the record of observations, experiment, lessons learned and taught, in the career of Dr. Park, and it would be a superfluous indulgence to select and name the steps in progress toward complete knowledge to be read in the titles of fundamental and supplementary contributions from his hand.

This gentleman of science, a very perfect knight of bacteriology, belongs to that choice company so ably conceived by the late Arthur Little as a "fifth estate, composed of those having the simplicity to wonder, the ability to question, the power to generalize, the capacity to apply; in short, the company of thinkers, workers, expounders and practitioners upon which the world is absolutely dependent for the preservation and advancement of that organized knowledge which we call science."

The simple directness of method, the clarity and utter frankness of report, the invariable readiness to listen to objections, to accept evidence, to be more

than generous to the work of others, to bring forth the creditable work of associates, all have combined in his scientific manner to make Dr. Park's presentation of a report or his participation in a discussion an occasion as refreshing as it is always enlightening, a true intellectual exhilaration, giving confidence in the continuing value of the professional platform as the tournament half of medical progress.

To those concerned in the social application of medical discoveries and the useful established facts of biological and medical knowledge through the instrument of civil government at tax payers' expense, Dr. Park's contribution in maintaining the first and most eminent municipal laboratory of diagnosis and research for 42 years free from the malign influences of political corruption and technical deterioration, is almost as stately a monument to his quality as citizen and director as have been his mastery of preventable diseases.

It has been not only through the good fortune of circumstances but as a result of the application of a consistent and sustained philosophy of study, controlled observation, experiment in test-tube, animal cage, institutions, and the homes of the city, that Dr. Park has found in his own hands and created to meet each probable need that entire and complete series of resources upon which progress from theory to practice, from hope of life saving to tangible proof of its successful accomplishment are based.

If it were not enough to have added generously to the extent and precision of human understanding of the specific causes and associated factors concerned with the prevalence of communicable diseases, and to have carried to unbelievable success the mass application of specific measures for their wholesale prevention and control, and to have built an enduring structure of precedence and procedure for the administrative officers of health in all lands to intimate and add to, his position as teacher, as trainer of other directors of laboratories or searchers in the border-line of knowledge, as demonstrator to practitioners in medicine in a thousand communities of the way to carry new skills of diagnosis and immunity into the homes of the nation, would still be eminent and of high degree.

If and when retirement from service to his city be demanded by the exigencies of municipal ordinance, Dr. Park will continue in his position as leader in the science and art of public health, held in admiration and affection by the entire membership of the American Public Health Association.

## FIFTEEN YEARS OF ADMINISTRATIVE HEALTH PROGRESS

A MILESTONE in public health progress was the appointment by the American Public Health Association in 1920 of a Committee on Municipal Health Department Practice, since 1925 known as the Committee on Administrative Practice. This committee was charged with the "preparation, study, standardization, and presentation of scientific public health procedures, by the collection of information in regard to current administrative health practice, the analysis of the material obtained to derive standards of organization and achievement and the translation of these standards into terms of concrete achievement through an information and field service."

Fifteen years ago there was a striking lack of authentic information in regard to the practice of health departments. A health officer may now review his problems and program in the light of experience in other communities and apply

measuring rods to the appraisal of local services. The important work of the committee is described in detail in this issue of the JOURNAL. Exhaustive studies have stimulated the development of comprehensive health programs and have influenced the formulation of modern standards of health practice.

The value of trained public health personnel is perhaps nowhere better exemplified than through the work of this committee which has been fortunate in the selection of its field directors and other staff members. Many official and nonofficial organizations, national, state, and local, including the United States Public Health Service, members of the National Health Council, the U. S. Chamber of Commerce, and insurance companies, besides the health departments of the country, have coöperated in the program and supported the work. The most important service of the committee has been the voluntary work of its tireless and devoted members. Their efforts have materially aided the development of administrative health service in scope, volume, and effectiveness, coupled with increased stability of organization.

There are manifold opportunities for the application of this important means of health improvement. This is a period of evaluation. Increasing attention is now being given to qualitative measurements whereas in the past the concern has been largely with quantitative results. The U. S. Chamber of Commerce Health Conservation Contests, in which the committee has participated on a coöperative basis, have aroused the interests of business and industrial leaders as well as professional workers in the importance of a sound community health program for both the urban and rural areas. The time is not far distant when the further study of state health programs might lead to promising results. In the enlarged federal health program the information gained during these 15 years of service should likewise prove of inestimable value. The present opportunities challenge the best thought of leaders in the public health field.

## NATIONAL HEALTH INVENTORY

PHYSICIANS and health workers in the country will watch with interest the progress of the National Health Inventory now being conducted under the U. S. Public Health Service as a Works Progress Administration project. It is under the direction of L. R. Thompson, M.D., and George St. J. Perrott, both of the Service. It would be well nigh impossible to select more competent men for this work.

In our November issue we published the excellent address given by Josephine Roche, Assistant Secretary of the Treasury, in charge of Public Health, in which she spoke at some length of this survey. She outlined it under 5 heads, and described its scope and methods as follows:

1. An inventory of public health and medical facilities supplementing information now available. These health facilities include public health agencies, both official and unofficial; medical facilities, including the distribution of physicians, hospitals, and institutions; and the number and distribution of public health nurses, nurses in private practice, and nurses employed by visiting nurse associations, public and private. All existing information will be utilized, such as the data already published by the American Medical Association, the American Hospital Association, and other agencies including the American Public Health Association. The new data will be collected only where and when it is needed in order to fill up gaps in the knowledge and inventory of health facilities. This phase of the work will be coördinated with the illness survey but will not involve the employment of relief personnel in securing the information.

2. The extent of disability from disease and accident with special relation to chronic conditions and impairments. In this, the coöperation of the medical profession is necessary to supplement the enumeration of surveyed populations and of disability by technical information on the nature of disabling illness among those who have been attended by physicians.

Some 750,000 families will be interviewed personally between October 15, 1935, and March, 1936. These families are distributed in 95 cities and towns in 19 states. The questionnaire has 64 heads, under some of which are a number of subheads, so it is clear that the enumerators will have some task.

As far as we know there are nowhere any extensive and available statistics on the subject of chronic and disabling diseases, so that the results of this survey will be exceedingly valuable as well as interesting, if accurate. At first the impression was given that it was largely a plan for giving employment to white collar workers. It is estimated that at the peak of the work some 6,000 enumerators will be engaged, and that altogether, 30,000 persons will be given employment during the survey. The country has been divided into 5 areas, for each of which there is a regional supervisor. The tabulations and analyses of the results will be a tremendous job in itself.

We believe there has been rather widespread doubt concerning the possibility of obtaining proper answers to the questionnaire, in view of the fact that the work is beginning without specially trained canvassers. However, it has been pointed out that there are many physicians and nurses, some of whom are on relief, in need of work, and to a considerable extent these will be employed. As much training as possible will be given to all enumerators.

State and local health officers have already been approached in connection with this work, and attempts will be made to verify the diagnoses reported in the questionnaire by the physicians who have been in attendance on the families and persons, and where possible transcripts of hospital records, sick benefit associations, etc., will be consulted. Experience in one city of the United States has led some of those engaged in this work to feel that enough accurate results will be obtained on which to base a fair estimate of the conditions in the country as a whole. Leading experts have been engaged to tabulate and analyze the answers received, and if a reasonable proportion of these are accurate, the value of the whole can be fairly judged.

The cost of this survey will be heavy and we all hope that the results will justify the expenditure. If they do, results will be obtained which will serve as a guide for the future. The work will be conducted after methods which have been employed by the Public Health Service for a number of years, and, as Miss Roche says, in certain aspects it will be a continuation of activities which have been carried on for several years by that Service.

The names of the states and cities to be included and some of the fundamental facts of the survey may be found in the October JOURNAL, page 1172. We believe that all public health workers and most physicians should read both this and the address by Miss Roche given before this Association.

# PUBLIC HEALTH EDUCATION*

**Why Not in November Issue?**—This section failed to appear in the November, 1935, issue because no copy had been prepared during the week preceding the Milwaukee meeting.

**Health Education Fared Well at Milwaukee**—We had space for Health Education Headquarters such as we have had only at Pasadena. . . . Section meetings were well attended . . . with some good material presented for publication in the *Journal*. The Institute drew another new group many of whom were new to the Annual Meeting. The annual session of the Section gave thoughtful consideration to several important matters. Several staff members of Milwaukee Health Department rendered much faithful and effective service in connection with Health Education Headquarters. . . . Everything was lovely except the meeting rooms in the Auditorium which distorted voices and made much of the talk practically unintelligible.

**Headquarters Program at Milwaukee**—An experiment this year was a program of demonstrations. Included were electrical transcriptions of radio plays, presented by T. C. Stowell, of New York State Dept. of Health.

Scientific and popular 16 mm. motion pictures received from various sources were projected by Eastman Kodak Stores of Milwaukee. "Contacts," a talkie from Hennepin County Tuberculosis Assn., Minneapolis, was put on one day.

The new A.M.A. dramatic broadcast was received on Tuesday afternoon.

Slidefilms from the Society for Visual Education were shown daily.

However, the program was not a success because the attendance at Health Education Headquarters was scattered too widely throughout the day to secure satisfactory audiences for program events.

**Education Headquarters at Milwaukee**—The collection of classified portfolios was supplied by Social Work Publicity Council, 130 East 22d St., New York, N. Y.

In response to the invitation mailed to A.P.H.A. members a variety of additional material was received for display. Among those represented:

Health Service of Canadian Medical Assn. New York State Dept. of Health. International Society for Crippled Children. Bureau of Dental Hygiene of University of Iowa. Milbank Memorial Fund. Baltimore Health Dept. Milwaukee Health Dept. American Social Hygiene Assn. National Health Council. American Physical Education Assn. Buffalo Museum of Science. American Medical Assn. Massachusetts Dept. of Public Health. National Organization for Public Health Nursing. New Mexico Bureau of Public Health. Foreign Policy Assn. Cattaraugus County School Health Service. Nassau County Tuberculosis and Public Health Dept. Brookline Health Dept. Physical Education Health and Recreation Digest. Good Teeth for Children Council. *National Parent Teacher Magazine*. Wisconsin Anti-Tuberculosis Assn. Westinghouse Electric and Mfg. Co. Evaporated Milk Institute. Dairymen's League. Pictorial Statistics, Inc.

**Scientific Exhibits at Milwaukee**—The *News Letter* has taken the

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York, N. Y.

story to all A.P.H.A. members, but these paragraphs are added to complete the record.

Due to the faithful persistence of Chairman Homer N. Calver, the Scientific Exhibits have grown in number, variety, and significance.

This year judges Hiscock, Connolly, and Norton gave citations of merit to certain displays for specified features which seemed to call for special mention.

**Again Too Many for True Teaching**—With an average session attendance of 125 to 140, the Health Education Institute was too large for effective teaching purposes. But there was one splendid gain. Announced as being for rural and small city workers it was the most homogeneous group yet gathered for the Health Education Institute.

Why not in 1936 experiment in having two or more institutes for specialized groups? Various state conferences of social work conduct from six to a dozen or more institutes. In most states only 25 may be enrolled. If more wish to enter a certain institute an additional leader is secured and another group of 25 is provided for.

**How Do They Get That Way?**—Again at Milwaukee half of those who turned up for the Health Education Institute had not registered in advance.

And, of course, every one suffered. Adequate planning was impossible.

**Shall We Call It That Way?**—Under "What Shall We Call It?" we submitted to our readers some of the "Definitions of Terms in Health Education" then under consideration by American Physical Education Association. (See *Journal*, for April, 1935, pp. 491–492.) Since then the report has been approved by A.P.E.A.

The committee of A.P.E.A. did an excellent piece of work. Probably after careful examination we will find that the definitions and the accompanying interpretations and applications will fully serve the purposes of the Public Health Education Section.

The terms defined: health education, school health education, public health education, hygiene, sanitation, health, health instruction, health service, healthful school living, health examination.

Terms which have outgrown their usefulness: health supervision of school plant, health supervision of school processes, school hygiene, medical inspection, school health program, etc.

For a reprint of the full report address American Physical Education Association, 311 Maynard St., Ann Arbor, Mich. *5 cents.*

**Cutting House Organ Costs**—*Alabama's Health* is published by Alabama Tuberculosis Association, Birmingham, Ala. It is sent to 200 Christmas Seal sale workers, health officers, local tuberculosis association presidents, etc.

The little magazine is reproduced by planography, one of the names given to offset printing, as explained under "Many Names for a Single Process," in the *Journal*, Sept., 1935, page 1045.

Acting Executive Secretary K. W. Grimley sends the following statement and will be glad to answer questions:

Copy is carefully typewritten with a heavy ribbon on sheets of paper slightly larger than the final size. (Any size original may be employed and the typewriting reduced to any desired extent.) Headings are typewritten with the same typewriter employed for the body type. These heads are then enlarged by photostat to an appropriate size, cut and pasted in place on the final typewritten draft sent to the publisher. Likewise illustrations are cut and pasted on the final copy. This final copy when completed is sent to the publisher and photographed, the photograph being the basis of the reproduction process. Pages are delivered to us flat and are hand folded and gathered by us.

The total cost of each of our issues is about $15; approximately one-quarter the equivalent cost of printing. Any typewritten or printed material may be used in the process. Original photographs however must be screened before use; an operation which entails an expenditure of about one-half the cost of equivalent engraving. All our illustrations are clipped from magazines and circulars and are reproduced without any additional charge.

**Municipal Broadcasting Station Not Afraid**—The National Society for the Prevention of Blindness, 50 W. 50th St., New York, N. Y., reports a radio talk on "Foresight Saves Eyesight" in which syphilis was discussed.

Speaking over Station WNYC, New York municipally owned station, C. Edith Kerby of the National Society staff said:

Probably the most serious of all infectious diseases which may result in blindness is syphilis. This disease can affect the eyes in ways too numerous to be described here, except to say that every one of them is serious. Unlike any of the other infectious diseases, it can even be passed on to a baby before it is born, so that the child may come into the world with seriously defective or blind eyes, or it may apparently be healthy but carry in its system the germs which will attack its eyes several years later.

The method of diagnosing this disease by means of a blood test should be more generally used by physicians, since many of its victims may not be aware that they have syphilis or have been exposed to it. For the prevention of much unnecessary blindness and other defects in children, the National Society for the Prevention of Blindness urges the use of a routine blood test for all pregnant women to discover and treat mothers who need treatment.

**How New Ideas Grow**—Without benefit of psychological terms a business man outlines the process of growing ideas. Here are the five steps:

1. Formulate your objective.
2. Think in simple terms.
3. Be intelligently ignorant.
4. Discipline imagination.
5. Stop thinking.

The very first one is not as simple as it reads. Much health education may be undertaken without an objective, much less one that is clear-cut and shaped to the plans under way.

Says the author:

The next step is the hardest. If you don't believe it, try to speak in clear, concise, simple words. Listen to others. Successful men have learned to think in fundamentals. It is at least a partial explanation of their success. It should be possible to reduce the most complex problem to simple terms. If it isn't, facts are lacking.

The third step implies a willingness, or better, an eagerness to learn. It is not difficult to feel that one "knows all about" one's organization, the people to be reached, the technics of the job, and so on. Eagerness to learn goes hand in hand with skill in learning. The writer says:

. . . intelligent ignorance confines questions to the problem at hand. At the same time it includes the simple "what, why, and when," for nothing is taken for granted.

To discipline the imagination is to avoid "danger ahead."

As one learns to think in terms of fundamentals, and as intelligence is used in satisfying curiosity, imagination begins to work. Immature or false conclusions are the dangers to be avoided at this point. Beware of flying too far from an earthy sense of values. . . . A new way of reaching a goal is not necessarily important. Neither is an old method necessarily sound. Imagination must not be allowed to lose sight of facts or fundamentals.

And now, most difficult of all is the stop thinking step. Give your mind a chance to work for you. Drop the subject. Lay aside the manuscript. Do other work, or read or play. When you get back to your problem the idea is likely to come, and it is likely to be a sounder proposition than if there had been no interval. In "New Ideas and How They Grow," by C. S. Kauffman. *Advertising and Selling*, 9 East 38th St., New York, N. Y. Nov. 7, 1935. *15 cents.*

**Lay Education against Cancer**—A large part of the annual report of the American Society for the Control of Cancer is devoted to professional and lay education. The Society has been making wide use of wax models, charts, and film strips. As many as 90 copies of film strip have been made.

Lay education, both direct and through numerous coöperating groups, has been widespread. The society supplies newspaper material and radio talks for local use.

An important development is the addition to the staff of Mrs. Carl B. Illig, Jr., for field work. Mrs. Illig has served as chairman of the Committee on Hygiene and Public Health of the General Federation of Women's Clubs.

In *Bulletin,* American Society for the Control of Cancer, 1250 6th Ave., New York, N. Y., Oct., 1935.

**What Should an Assistant in Health Education Know?**—A precedent has been set (at least, so far as we know it is a precedent) in a recent civil service examination in New York City, for an assistant in health education (publicity worker). The examination sheet brackets "publicity worker" in just this way.

We print below the 4 questions which the applicants were asked in the written examination. Question 3 relates to a one-page article on rickets which was supplied.

1. Choose one of the following health problems—

(1) Prevention of cancer
(2) Prevention of tuberculosis
(3) Prevention of malnutrition

which you believe to be of importance in one of the following districts in New York City which you select and locate

(1) A district populated largely by colored people
(2) A district populated largely by people of foreign birth
(3) A district populated largely by the "white collar" class

(a) Tell why you believe the people in the district selected should be informed concerning the problem chosen.

(b) What agencies and associations (national and local), because of their special knowledge or interest in the problem, might be helpful to the department in planning an educational campaign in the district?

(c) Mention some local agencies or organized groups in the district through which the health department might wish to work in order to reach the people with educational materials and ideas. (Exact legal titles are not required.)

(d) List and number the important basic facts about the problem you would wish to convey to the people of the district.

(e) What action would you wish the people to take with regard to the problem?

(f) What incentives or persuasive suggestions would you employ to get people to take the desired action?

(g) What publicity and educational media or other channels of reaching people would you use, assuming that the budget for this purpose is limited but not stinted?

2. To carry out certain health protective procedures for children, it is necessary to secure the consent of the parents. Among these are

(1) Consent to remove child's clothing to make a physical examination in school
(2) Consent to make a tuberculin test
(3) Consent to administer toxin-antitoxin or toxoid

Select one of these consents for consideration.

(a) Mention the objections to it commonly raised by parents.

(b) Frame answers to these objections.

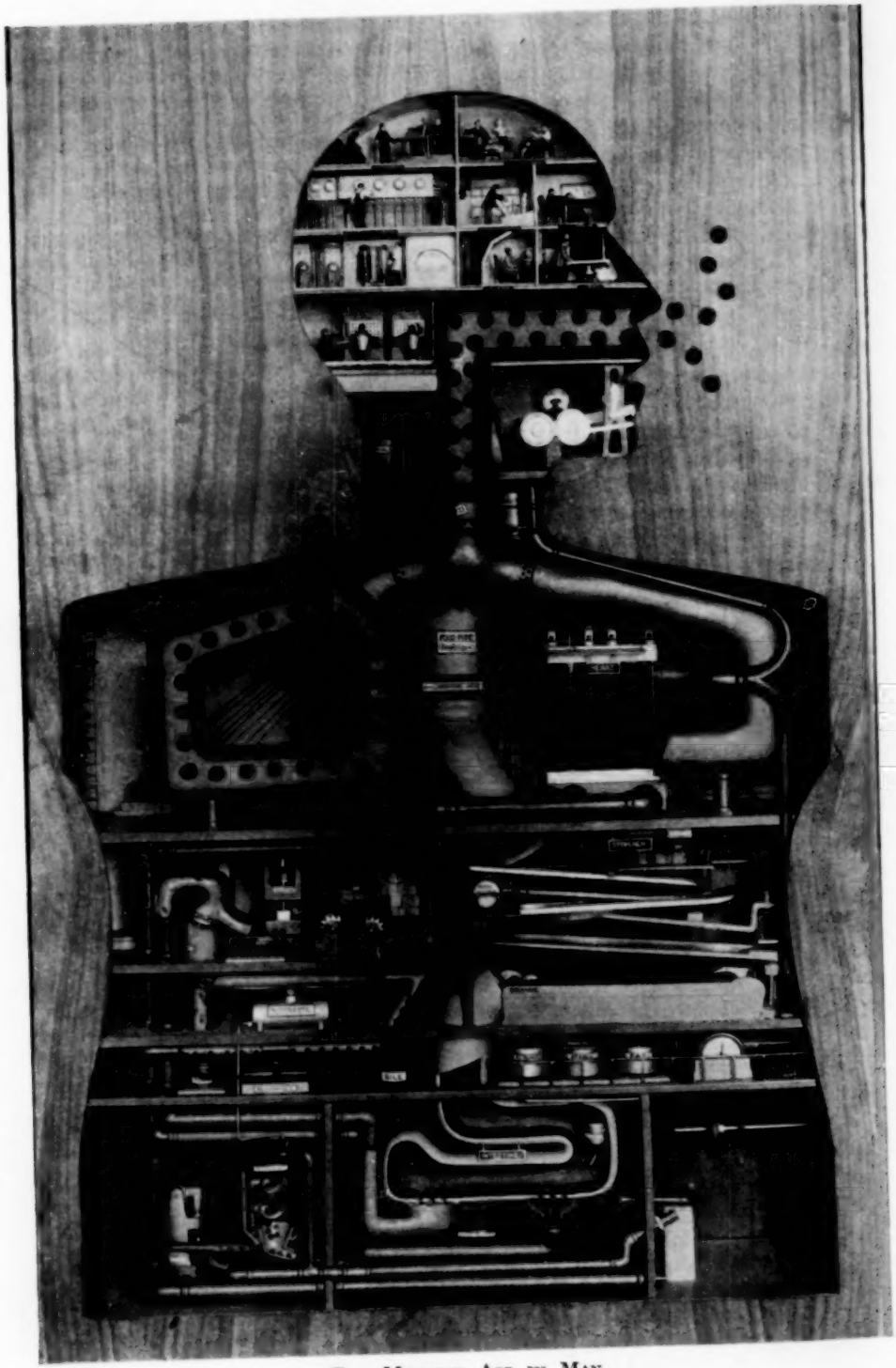
(c) In a community where the procedure you selected is to be introduced, what would you suggest be done in advance to secure a high percentage of consents?

(d) A mother has written the health department that her medical advisor, who is an osteopath, has advised against the procedure. She is foreign born, but understands simple English. Write a short letter in answer to hers.

3. Using the article on Rickets as a basis and supplementing it by your own knowledge, write a 500 word first-draft manuscript entitled "Rickets. What It Is and How to Prevent It."

The article should be suitable for publication in booklet form and is intended for distribution to mothers of medium intelligence.

4. Assume that a rumor that poliomyelitis threatens the city is disturbing people, that



THE MACHINE AGE IN MAN

it is true that a few more cases than usual have been reported in the past month, but that, to the best knowledge of the health commissioner, there is no immediate threat of an epidemic. Assume also that the early symptoms of poliomyelitis are often vague or resemble those of some relatively harmless condition, that early diagnosis is advantageous both to patients and to the public, and that people have heard much about a certain curative serum the value of which has not yet been proved.

Write a 3 minute radio talk designed to allay needless fear and also telling people what precautions to take.

**Syndicated Health Articles**—"The Annual Directory of Features" appears in *Editor and Publisher*, Times Building, New York, N. Y., Sept. 28, 1935. *10 cents.*

Health material appears under "The Debunker," "Family Doctor," "Health and Beauty," "Health Article," "Health Column" (Clendening), "Health" (Fishbein), "How's Your Health?" (Galdston), "Medical News" (Science Service), "Personal Health Service," "Secrets of Health and Success," "That Body of Yours," "Your Child's Health," "Your Good Health," "Your Health" (Copeland), "Your Weight and Your Height."

In addition to the above there are features on mental hygiene, child care, beauty, food, and psychiatry.

**The Machine Age in Man**—In Cabana Hall of Man, Buffalo Museum of Science, has been installed the "Human Factory," a three-dimension exhibit reproducing the well known diagram which came to us from Germany some years ago. The model is animated. Cogs move, wheels revolve, pumps operate, red and blue lights show the course of air.

This model represents, in terms of ordinary factory practice, the various operations essential to maintain life in a human being. The normal functions of the human body are directly comparable to the operations of a manufacturing plant. Certain raw materials (food and air) are taken in, treated in order to serve a definite purpose. The only difference between the Human Factory and man-made factories is that the former uses all its products within the four walls of the body; a man-made factory ships its products for use elsewhere. In the cranium is located the office of the Human Factory. Here are the centers of judgment, intelligence, hearing, seeing, will power, motion, and feeling, corresponding to a factory's conferences to determine policies, telegraph department, mailing room where orders are received, department of production control, telephone switchboard which ties organization together. Processes in torso show what happens to raw material. This model was made in the Division of Preparation, Buffalo Museum of Science, under the direction of Dr. Carols E. Cummings, director.

**Extent of Rural Health Service**—A lot of state and local health workers should be able to make good promotional use of "Extent of Rural Health Service in the United States, Dec. 31, 1930–Dec. 31, 1934," in the *Public Health Reports*, Washington, D. C., Nov. 1, 1935.

Here are listed counties, townships and other districts directed by whole-time local health officers and maintained by local or state funds. A map and a diagram reinforce the lists.

**What Actually Is Being Done?**—We have heard rumors of federal funds being spent on health education. We have seen one very preliminary memorandum. But nothing more. Will any one in Washington or in any of the states help us to an intelligible statement for the readers of the *Journal?* Or suggest who can supply the necessary information?

**Health Education in September, 1935, Journal**—In "Sanitation in the Holy Land," by Mendelsohn (pages 997–998): descriptions of the first Palestine Health Week, and a Health Exhibition in 1924.

In "Sanitary Survey of Beverage

Establishments," by Mallmann and Devereux (top of page 1014): education of proprietors.

In "Books and Reports" see pages 1055, 1057, 1058, 1059, 1060.

"A Word to the Thrifty" (page 1067), plus diagram on the opposite page should interest many of our readers.

**Health Education in October, 1935, Journal**—"Health Information on the Air," by Blanchard (pages 1031-1088), reports a study of health education by radio, around San Francisco Bay. May suggest a project for other districts, for health councils or other groups.

"New Germany Teaches Her People," by Kleinschmidt (pages 1108-1113) (illustrated): tells of hygiene exposition; records some impressions; and raises some important questions.

"What Is Public Health?" by Hill (page 1134).

In "Books and Reports" (pages 1154–1162) are several reviews of interest.

**Hygeia, October, 1935**—Published by American Medical Association, 535 N. Dearborn St., Chicago, Ill. Here are selected items appearing in Oct., 1935, issue:

Prevention and treatment of goiter (first of three reproductions of radio talks). Caffeine and health (part 1). Care of contagious disease in the home. The physician in literature (books by and about physicians). Speech problems and speech care. Health of our navy at sea. The case of the man who exploded (a doctor's mystery). Health education through models (illustrations from Buffalo Museum of Science). Sir David Bruce (a pioneer scientist). Child guidance clinic. Some diabetes "cures" and "treatments." Surgical conditions in children (radio talk). This thing called dentistry. What about your child's feet? A modern Aladdin's lamp: how germs travel. Health news pictures. Books on health. Questions and answers.

In "School and Health":

Opportunities for health teaching in the curriculum. Health teaching in October. Solving health educational problems. Safety problems through the years in Boston public schools. Rest and nutrition class (Boston). Training for good posture. New health books for teachers and pupils.

# BOOKS AND REPORTS

**Preventive Medicine and Hygiene**—*By Milton J. Rosenau. (6th ed.) New York: Appleton-Century,* 1935. Price, $10.00. 1,481 pages.

The 6th edition of this standard work has come to us with the statement that it is "extensively rewritten and entirely reset, much new material has been added and much dead wood deleted."

One misses familiar landmarks. In the Table of Contents we look in vain for Malta Fever, though fortunately it is still found in the index. The term Undulant Fever covers the many names under which the disease has been known.

Diseases are arranged in groups according to their general method of spread. This is good as far as it goes, but there is still a group of some 18 diseases (if snake poisoning can be considered a disease, as the author considers it) which are classified as "miscellaneous." Section II begins with venereal diseases and devotes chapters to sex hygiene, contraceptives, heredity, drug addiction and mental hygiene—certainly a mixture.

It is not until we reach the middle of the book that we come to Section V, which considers Public Health Principles and Practice, and the rest of the text is devoted largely to what is generally considered public hygiene—food, air, soil, water, etc.

Another change, which can hardly be considered an improvement from the reader's standpoint, is the moving of references to the end of sections instead of giving them at the foot of the page, as in the 5th edition.

We wish that the rewriting and deletion of dead wood had gone far enough to remove the statement on page 16 that young bovine animals used for the production of vaccine must be examined to determine the absence of glanders. This blunder has appeared in edition after edition. On page 380, under the head of Glanders, the correct statement is made that cattle are immune to this disease.

The section on Tuberculosis is one of those mentioned as having been "largely reorganized." The discussion of the human and bovine varieties of the tubercle bacillus leaves much to be desired, and on page 31, the statement in regard to the comparative virulence of the two makes one wonder just what is meant.

On the whole, the book maintains the high standard set by former editions. It has grown almost too large to be used as an ordinary text, considering the time allotted in most medical schools to the teaching of hygiene. The book contains a wealth of information and will unquestionably maintain the position it has held through some 22 years as a standard reference. The printing and binding are excellent. MAZŸCK P. RAVENEL

**Diet and Physical Efficiency**—*By Howard W. Haggard, M.D., and Leon A. Greenberg, Ph.D. New Haven: Yale University Press,* 1935. 180 pp. Price, $3.00.

This monograph attacks the fatigue question with strong emphasis upon a neglected viewpoint—nutrition. Quoting from the descriptive cover we read:

> Howard W. Haggard and Leon A. Greenberg believe that the quantity and the quality of food have received a great deal of attention in recent years, but that the dis-

tribution of diet in time has not received the attention it deserves. This volume, therefore, is a study of the influence of the frequency of meals upon physical efficiency and industrial productivity. The attempt is made to discover and formulate the principle of the best mealtime interval, and the importance of this principle is emphasized by the fact that on the same amount of food the industrial output of factory operatives may be as much as 10 per cent greater under one mealtime arrangement than under another.

From studies first worked out in the laboratory, careful observations were made on 213 persons—children, students, clerks, and employees in a rubber factory. The contribution therefore is one of practical importance in everyday life as well as to industry and public welfare.

In addition to the theme of mealtimes, diet and productivity, the 9 chapters take up nutrition, muscular efficiency, blood sugar, the respiratory quotient and its determination (as an index of efficiency), following which is a short appendix on the problem of industrial fatigue, and a bibliography of some length, also an index. The 35 tables and 31 figures have great instructional value and practically tell the tale in themselves.

Adapted as well to those not trained in physiology as to experts in nutrition, and indeed to general readers, the context is unusually clearly presented. Frequent repetitions have not detracted from the easily followed story, but, like the movie which shows up the hero, now from this point of view and now from that, the reader is charmed from cover to cover. Every possible question appears to have been foreseen and logically answered. For example, Why should we not eat candy or ice cream or take a soft drink for a " bracer " between meals? Like a novel, new characters appear as the chapters unfold, to be woven together with fine justice to each and all. It is indeed a romance in practical nutrition.

Naturally, diabetes and insulin come in for special attention. The most disturbing " villain " is the emotional factor. One " villain " seems to have been overlooked—stimulants substituted for food. Several other " intrinsic " ones such as physical impairment, degree of experience and skill, frequency of rest (or relaxation) and sleep, were probably connoted and ruled through controls, during the investigation. In a theoretical analysis of the possible elimination of fatigue made by the reviewer some years ago (Craig's *Diseases of Middle Life,* Vol. 1:88, 1923) he arrived at the conclusion that " if all the factors listed for the intrinsic causes of fatigue are properly supervised, it is only exceptionally possible to fatigue the human body by the extrinsic factors."

A reference oversight is that to the citation from " R " (C) P. McCord on pages 158–9 (including discussion), but the original may be found in McCord and Allen's *Industrial Hygiene for Engineers and Managers* (Harper's, 1931, p. 160). We note another omission from the Bibliography, *viz.*, Amar's *Physiology of Industrial Organization,* 1919, and *The Human Motor,* 1921. Works on industrial efficiency and health have quite generally overlooked this undoubtedly important factor of *spacing meals*—even the late extensive 2 volume work, *Occupation and Health,* by the International Labour Office, while the old *Taylor Scientific Management* missed it completely, so that now one wonders whether the famous Schmidt in Taylor's experiment who increased his capacity of loading pig-iron from 12 to 47 tons per day did not do it more by piecemealing than by " scientific management." Perhaps, too, the authors have explained the British supremacy—" three squares and two snacks each day "!

Finally, one is tempted to ask the

persistent question again: Is there a test for fatigue? Is not the answer, *the respiratory quotient*, as worked out by Haggard and Greenberg?

EMERY R. HAYHURST

**Agents of Disease and Host Resistance, Including the Principles of Immunology, Bacteriology, Mycology, Protozoölogy, Parasitology and Virus Diseases**—*By Fredcrick P. Gay and Associates. Springfield, Ill., and Baltimore, Md.: Charles C. Thomas,* 1935. 1582 pp. Price, $10.00.

The value of a comprehensive presentation of subject matter by one experienced student is admitted but it is felt that the rapid growth of Bacteriology makes it impossible for one individual to have first hand information regarding bacterial and other types of diseases. As the preface states, it is hoped that this book affords "a balance between the one-man text and the collected monographs of multiple authorities." It is believed that the close association and centralized interests of the participants have given the book a homogenous character which could not have been achieved by a widely separated group of writers.

The subject matter covers a much larger field than the usual text or reference book in Bacteriology. The chief author writes, "The 'Etiology of Disease' might be suggested as a simpler alternative title for this book." The varied contents reflect his conviction that the medical student should have presented to him "a larger background of disease causation, as well as a somewhat detailed consideration of the pathogenic bacteria, which although important, are by no means the only agents of disease," and he feels that the student will profit by viewing a "larger canvas depicting the entire range of disease causation,"—therefore the inclusion of material on disease producing helminths, diseases of obscure etiology such as endocrine disturbances, epilepsy, etc.

The subject matter is divided into 12 parts. Part I serves as an introduction and presents the General Aspects of the Causation, Classification and Nature of Disease in an historical and philosophical fashion. Then follows a discussion of Inanimate Disease Agents and Tolerance. Chapters on Anaphylaxis and Allergy are given here instead of in the part dealing with Immunity, as is usual. Morphology and Physiology of the Living Disease Agents, ushered in by a chapter on the History of Bacteriology makes up Part III. Part IV deals with Infection in General, and Epidemiology. Part V is entitled "Resistance and Immunity" with a final chapter on Tissue Immunity.

Approximately one-third of the book is given over to the next part with the twenty chapters on "Pathogenic Bacteria and Diseases Produced by Them." The chapters on Streptococci and the Enteric Group of Bacteria, written by Dr. Gay, are especially complete. The remaining six parts discuss Spirochetes, Fungi, Viruses, Animal Pathogens, Diseases of Obscure Etiology, with a final group of chapters on "Practical Results in the Diagnosis, Prevention, and Cure of Infectious Diseases."

This final part discusses and appraises the various methods of disease diagnosis. No details of laboratory procedure are given,—the book is one "of principle rather than practice." The value of bacteriological and immunological tests used in diagnosis of infectious diseases is summarized in table form. This is one of many tables and charts given in the book. Some are reproduced from other texts; many are new. All add to the usefulness of the book.

Dr. Gay has entirely or partially written 23 of the 65 chapters, and Dr.

Jungleblut 10. Dr. McKinley is responsible for the entire section on Virus and Rickettsia Diseases.

The material is presented in a most interesting way and in an organized fashion which the experienced student will appreciate. The great number of contributions to the book do not interfere with the continuity of the material. In many cases, it is not necessary to see the signatures at the ends of the chapters to know the authors, but this adds interest.

It is printed on good paper and attractively gotten up, though its large size makes it a trifle unwieldy. The experienced student will be rewarded upon careful use of the vast amount of material with extensive references. One wonders if the undergraduate could make practical use of the book.

ANNA DEAN DULANEY

**The Story of Medicine in the Middle Ages**—*By David Riesman, M.D. New York: Hoeber,* 1935. 402 pp. Price, $5.00.

The author has given us a most readable, interesting and scholarly history of medicine in the Middle Ages. He discusses the question of when the Middle Ages began and when they ended, and suggests that posterity may include us as having lived in the Middle Ages. This period is also spoken of as the Dark Ages. Singer says of it, "All theoretical knowledge was permitted to lapse; anatomy and physiology perished, prognosis was reduced to an absurd rule of thumb, medicine deteriorated into a collection of formulae punctuated by incantations; the scientific stream, its life-blood, was dried up at the source." The writer shows that from the period beginning with Gregory VII (1020–1085) there was definite progress in medical and surgical practice, and quotes Crump: "We need not praise, nor need we blame overmuch, but certainly we must understand." In his Preface he says "The people who produced the Great Cathedrals, the French Chansons, the German Minnelieder, the Magna Charta, Parliamentary Government and above everything, the Universities, deserve our gratitude and admiration."

He sums up the advantages of the Middle Ages as being one dominant religion, one social system and one universal language. As there were comparatively few centers of learning, students centered at the points where learning was in evidence, first in the monastic schools, then the Cathedral schools, and finally in the great universities. The scholar in the Middle Ages was a distinguished man and learning was a mark of distinction. The doctor of medicine had a degree almost equal to a patent of nobility.

One of the things which we must be especially grateful to the Middle Ages is the preservation of literature due to the invention of printing. For 50 or 75 years after the invention of this art, printers were men of learning and spent their time in reproducing old texts, since there were few writers at the time. This resulted in the preservation of classical works which might otherwise have been lost. Many of the early medical books were textbooks for students and physicians written 200 or 300 years earlier. We owe then to the Middle Ages the preservation of the writings of the Greeks, Arabs, Romans and Jews, without which the progress of medicine and of culture would have been even slower than it was.

The chapters describing the rise of the universities in general and descriptions of special universities which follow are among the most interesting features of the book. These have been called "the greatest element in the emancipation of the human spirit," and if for no other reason than the founding of the universities, the Middle Ages are entitled to respect and gratitude. Rash-

dall is quoted as saying that they are "of greater and more imperishable value than its cathedrals." By the end of the Middle Ages some 80 universities had been founded in various parts of Europe. While many of these were short-lived, those of Paris, Montpellier, Bologna, Padua, Oxford, Cambridge, Vienna, Prague, Leipzig, Coimbra, Salamanca, Cracow and Louvain have existed down to the present day.

Even the confirmed student of history will lay this book aside with a warmer feeling toward the Dark Ages and a greater appreciation of what they did, in spite of their many failures and shortcomings. We cannot but feel that it is a distinct addition to our histories and written in a spirit of appreciation which will change the ideas of many concerning this period which has been almost damned by the title Dark Ages.

The book is excellently printed with few typographical errors, and is well indexed. The illustrations are fairly abundant and good.

MAZŸCK P. RAVENEL

**Nutrition of Mother and Child**—*By C. Ulysses Moore, M.D., M.Sc., (Ped.) Philadelphia: Lippincott,* 1935. 258 pp. Price, $2.00.

The popularity of this attractive volume is attested by the 4th edition, which has been completely revised and rewritten. Considerable new material has been added on allergy, vitamins, the acid-base balance, mineral metabolism, and protein requirements. The book is written in non-technical style and is designed especially for mothers, nurses, and social workers.

Dr. Moore has been one of those most insistent upon the value of breast feeding in the face of refined methods of artificial feeding. His technic, *how to increase breast milk,* may be taken to be a standard method. It is described and illustrated thoroughly in this book. One wishes that Dr. Moore had not insisted upon illustrating his breast-feeder tube, which is difficult to keep clean and of questionable value. It took years to get away from the old type of nursing bottle with a long rubber tube. Aside from this, mothers will find his clear-cut, understandable directions very helpful in supplementing directions given by a pediatrician or physician skilled in children's diseases.

RICHARD A. BOLT

**Economic Problems of Medicine**—*By A. C. Christie, M.S., M.D. New York: Macmillan,* 1935. 242 pp. Price, $2.00.

This is a very readable volume which discusses the subjects of medical ethics in relation to medical economics; medical education; private practice; the physician and the hospital; the physician in relation to medical organization and the community; workmen's compensation; health insurance; industrial medicine; the new methods of medical care now under trial or recommended by medical organizations; health insurance as a solution to the problem; and the essential elements in a comprehensive plan for medical care.

Deriving much from the reports of the Committee on the Costs of Medical Care, of which the author was a member and one of the signatories of the minority report, the endeavor is made to present the problem from the viewpoint of the private physician. To this source of material the author has added much new matter from foreign and American sources, the latter pertaining particularly to the Alameda County, Calif., Detroit, and Canadian plans, an approved industrial telephone company plan, and similar sources, as well as recent articles in the *Journal of the A.M.A.*

Undoubtedly the view presented is correct in that if the physician is to fulfil his whole duty to the community he must maintain a position of leader-

ship in all medical and health matters. He should not be blamed for the defective medical service so universally present today in America, which is an economic problem considerably beyond his control, but he should be treated fairly in any solution of the problem, including a wholesome recognition of the costs under which he performs his services. Things have gravitated to the present situation for many reasons, but a chief one is the bare subsistence level of a large proportion of the population.

For a reviewer, who is frank to acknowledge that he has a deeply social viewpoint, the subject seems very fairly presented and is a fine summary of facts, theories, and plausible solutions currently offered. Until, however, some means can be found to separate money from misery, as two distinct entities, and to consider the physician as essentially a disciple of humanitarianism, who, nevertheless, must find some adequate means of support and subvention in relation to the importance of the position which he plays in community and national welfare, the problem will continue to be mooted. The author holds that organized medicine can and must insure quality of service so that free choice of physician and confidential relationships may safely obtain, but, if so, it will have to be delegated much more authority than at present, both over its members and non-members, and here the responsibilities of the local medical society are duly stressed. The great problem of the patient's free choice of medical care or some other kind of care was probably not considered within the scope of the present volume.

Even the casual reader will be interested in the discussion on Health Insurance, and the final chapter, Essential Elements in a Comprehensive Plan for Medical Care. He will also be impressed with the great advantage we have in drawing upon the experiences and mishaps of European schemes as well as the leadership in the solution of the economic problems of medicine which is appearing in various sections of our own country. The volume ends with quite an extensive bibliography and a brief index. It is the most convenient and recent assembly of the essential factors now at hand.

EMERY R. HAYHURST

**Pediatric Treatment**—*By Philip S. Potter, A.B., M.D., F.A.A.P. New York: Macmillan,* 1935. 578 pp. Price, $5.00.

This book is just what its title indicates, a manual of pediatric treatment designed especially as a reference work for general practitioners. It is not written for specialists in children's diseases or in child hygiene. Very little space is given to etiology and pathology. The bulk of the book is composed of clear statements for treatment of the various diseases of infancy and childhood.

Dr. Potter has drawn largely from his own experience; but where standard procedures have been worked out by others, he has incorporated these and given exact references at the end of each chapter. The practical suggestions in the chapters on nutrition and infant feeding will be appreciated by the physicians struggling with difficult feeding cases.

The excellent arrangement of subject matter and typography of this manual, together with the complete index of authors and subjects, makes it a valuable volume for ready reference.

RICHARD A. BOLT

**Work Relief in Germany** — *By Hertha Kraus, Ph.D. New York: Russell Sage Foundation,* 1934. 93 pp. Price, $.50.

This book presents a description of work relief in Germany prior to the recent political upheaval. The entire

work relief program was geared to meet the special and individual needs of the unemployed. Projects were developed and workers assigned to them for the primary purpose of preserving or restoring working capacity. The description of the special projects managed by the Work Relief Bureau clearly reveals this objective.

The work for wages plan in Germany was similar to that developed in the United States, except pay was based upon "the normal tariffs and wage agreements of the community" less 10 per cent, and the workers contributed to and were protected by state insurance for health, invalidity, unemployment, old age, and accident. Workers employed on work for relief basis, although ineligible for other forms of state insurance, were protected in case of accident.

"Shared work" was the term applied to the joint effort of government and industry to put men back to work. Selected private industries, taking workers from relief rolls, were subsidized upon their agreement to continue the employment of these workers for a specified time after the subsidy had expired.

Wages for all forms of work relief were paid in cash. The description of the function, organization, and procedure of the Work Relief Bureau is clear and concise. In view of the need for the development in the United States of a permanent public welfare program in which federal, state, and local governmental units will participate, Miss Kraus's discussion of the relation of the Work Relief Bureau to other public authorities is illuminating.

Although statistical and other supporting data are not presented, Miss Kraus, who for several years was the Director of Public Welfare in Cologne, Germany, writes with authority based upon intimate knowledge of the facts.

STOCKTON RAYMOND

**Health Protection in the U.S.S.R.**—*By N. A. Semashko. New York: Putnam*, 1935. 172 pp. Price, $1.75.

The author of this book was the first People's Commissar of Health, a post which he held for 12 years. He is therefore eminently fitted to write his side of the question. The book is frankly propaganda and belongs to the series called The New Soviet Library, being written by request.

The book outlines a more or less ideal administration of health, if one can believe in the method of operation now in vogue in Russia. Everything is under the Commissariat of Health, and the people are made to be good whether or not.

The book begins with a slap at the Tsarist régime and gives statistics of the deaths, child mortality, various epidemics, syphilis, etc., in that period. A glance at the Table of Contents shows that practically every subject pertaining to health and physical welfare is given consideration. The author says, "Thus unity in the organisation of the health service is the first distinguishing feature of Soviet medicine."

Among the striking features discussed is communal feeding. In 1931, 5 million workers and 3½ million office employees and peasants took their meals in public dining rooms, while 3 million school children were served hot lunches in school. The public dining rooms numbered 13,400, including 44 kitchen factories, which are described as "completely mechanised kitchens," each of which serves from 30,000 to 35,000 meals a day.

The book is interestingly written, but it is hard for us in this country to judge of its value, and we believe it will be a number of years before we can adequately judge of the success of the health program which the new government has inaugurated.

MAZÝCK P. RAVENEL

# A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

**More on the Moot Subject of Poliomyelitis Vaccination**—Infected monkey cord inactivated with formaldehyde was found to develop antibodies in experimental animals; then it was found safe for human administration. Large groups of children are being immunized and are being followed by controls.

BRODIE, M., and PARK, W. H. Active Immunization against Poliomyelitis. J.A.M.A. 105, 14:1089 (Oct. 5), 1935.

**Kansas Dust and Health**—Last summer's Mid-west dust storms which lasted for nearly 3 months increased morbidity and mortality from respiratory infections. There was no evidence that pathogenic microörganisms were carried by the dust.

BROWN, E. G., *et al.* Dust Storms and Their Possible Effect on Health. Pub. Health Rep. 50, 40:1369 (Oct. 4), 1935.

**Emergency Training of Social Workers**—Last year's training program of the Federal Emergency Relief Administration made it possible for states to secure for staff members training at accredited schools of social work. Suggestions for future programs were for longer study, better selection of students and need for choosing members for training on the basis of leadership ability.

BROWN, J. C. What We Have Learned about Emergency Training for Public Relief Administration. The Family 16, 6:172 (Oct.), 1935.

**What Old and Young Sicken and Die of**—Major causes of death are not the most frequent causes of illness. The degenerative diseases top the former and the respiratory diseases the latter. Illness is most frequent under 5, least from 15 to 19. There are many other conclusions to be gleaned from this analysis of studies that have been reported in detail in earlier papers, another of which appears in Public Health Reports 50, 41:1404 (Oct. 11), 1935.

COLLINS, S. D. The Incidence and Causes of Illness at Specific Ages. Milbank Quart. 13, 4:320 (Oct.), 1935.

**Tuberculosis and Climate**—Factors which seem to influence tuberculosis death rates are: standard of education; risk of infection from negroes; life in dry, sunny, high climate. These are of more influence than per capita income and population density, according to a study of 150,000 deaths from 42 states.

COWLES, A., and CHAPMAN, E. N. A Statistical Study of Climate in Relation to Pulmonary Tuberculosis. J. Am. Stat. Assn. 30, 9:517 (Sept.), 1935.

**All from a Sick Pig**—Maine's first trichinosis epidemic enjoyed the distinction of being the largest reported. Of 71 persons known to have eaten the insufficiently cooked pork, 56 had symptoms. Twelve of those who escaped reacted positively to a skin test; all 25 showed eosinophilia.

DRAKE, E. H., *et al.* An Epidemic of Trichinosis in Maine. J.A.M.A. 105, 17:1340 (Oct. 26), 1935.

**British Slum Clearance**—In England it is usually the health officer who

instigates slum clearance schemes. What preparation he must have and how he should do the job are considered in this most interesting paper. One wonders how long it will be, if ever, before American health officials will be given similar powers and duties.

FAWCETT, H. A. The Medical Officer's Practice of Housing. Pub. Health 49, 1:6 (Oct.), 1935.

**Mental Hygiene and Accident Prevention**—Of all industrial accidents 85–90 per cent are said to have as their proximate causes the mental conditions of workers. This points to need for increased use of mental hygiene programs in industry. An analysis of what this involves by way of personnel and organization is given in detail.

GRANNIS, E. R. Mental Hygiene as Applied to Industrial Accident Prevention. Ment. Hyg. 19, 3:398 (July), 1935.

**State Supervision of Industrial Health**—Showing the need for industrial hygiene as a state health agency activity, the author points to the safeguards that should be thrown about this project.

GRAY, A. S. Importance of Industrial Hygiene. J.A.M.A. 105, 15:1158 (Oct. 12), 1935.

**Professional Education of Nurses**—Serious problems which confront nurses today are those of overproduction and under-education. Their direct cause is the apprenticeship system of education found in most schools of nursing. Responsibility for reform should be assumed by hospital authorities, officers of universities, the community, and the nursing profession.

HAWKINSON, N. X. A Nurse's View of Nursing Education. Mod. Hosp. 45, 3:67 (Sept.), 1935.

**Thirty Dietary Substances**—Very brief but inclusive is this summary of the high lights of our knowledge in the field of nutrition.

MCCOLLUM, E. V. Food, Nutrition and Health. Health & Phys. Ed. 6, 7:6 (Sept.), 1935.

**Diphtheria Prophylaxis Experience**—Observations covering 46,000 immunized school children indicate reduction of the expected incidence of diphtheria cases by more than 90 per cent. Immunity is greatest the year following treatment. Immunization of the majority reduces the rate among the non-immunized.

MCKINNON, N. E., and ROSS, M. A. The Reduction of Diphtheria Following Three Doses of Toxoid. J.A.M.A. 105, 17:1325 (Oct. 26), 1935.

**Child Hygienists, Attention!**—If regular hours of rest and conditions conducive to sleep are maintained, Nature can be trusted to see that the child gets enough rest. Experience in this nursery school belies the teaching of "authorities" who have insisted that, if a child does not fall asleep within a given time and sleep for a set period, someone is at fault. The findings should give relief to harassed parents.

REYNOLDS, M. M. The Sleep of Young Children in a Twenty-four-Hour Nursery School. Ment. Hyg. 19, 4:602 (Oct.), 1935.

**About Abortions**—In the group of women questioned, one-fifth of all pregnancies were terminated by illegal abortions, the per cent increasing as marriage lengthened. The practice has increased in recent years. Because abortion causes so many maternal deaths, this is a public health problem which cannot be ignored.

STIX, R. K. A Study of Pregnancy Wastage. Milbank Quart. 13, 4:347 (Oct.), 1935.

**Every Community Needs a Mental Hygiene Program**—That the mental hygiene clinic can develop a

community-wide program is well illustrated by description of the work done in Manchester, N. H.

STONE, S. What Mental Hygiene Means to a Community. Ment. Hyg. 19, 3:416 (July), 1935.

**Bigger and Better Public Health**—Public health as a concept needs broadening to include more than sanitation, epidemiology, and hygiene. The author visualizes a program covering economic security, housing, and medical care as well.

SYDENSTRICKER, E. The Changing Concept of Public Health. Milbank Quart. 13, 4:301 (Oct.), 1935.

**Supreme Court Decisions about Milk**—Reasonable licensing of milk producers and distributors, standards for dairy products, prevention of shipment of diseased cattle, and regulation of milk prices, all have been thoroughly established by a number of decisions of the U. S. Supreme Court.

TOBEY, J. A. Milk Control and the United States Supreme Court. Pub. Health Rep. 59, 40:1384 (Oct. 4), 1935.

## BOOKS RECEIVED

A GEOGRAPHY OF DISEASE. A Preliminary Survey of the Incidence and Distribution of Tropical and Certain Other Diseases. By Earl Baldwin McKinley. Washington: The George Washington University Press, 1935. 495 pp.

INJURY AND INCAPACITY. By H. Ernest Griffiths. Baltimore: William Wood, 1935. 270 pp. Price, $5.00.

DIAGNOSIS AND TREATMENT OF SKIN DISEASES, INCLUDING THE CARE OF THE NORMAL SKIN. By Jacob Hyams Swartz and Margaret Gilson Reilly. New York: Macmillan, 1935. 316 pp. Price, $3.50.

PIONEERING WITH THE RED CROSS. By Ernest P. Bicknell. New York: Macmillan, 1935. 278 pp. Price, $2.00.

DIET AND DIE. By Carl Malmberg. New York: Hillman-Curl, 1935. 149 pp. Price, $1.50.

RADIUM TREATMENT OF SKIN DISEASES, NEW GROWTHS, DISEASES OF THE EYES AND TONSILS. By Francis H. Williams. Boston: Stratford Books, 1935. 118 pp. Price, $2.00.

INDIVIDUAL EXERCISES. By George T. Stafford, Harry B. DeCook and Joseph L. Picard. New York: Barnes, 1935. 111 pp. Price, $1.00.

THE ALGAE AND THEIR LIFE RELATIONS. By Josephine E. Tilden. Minneapolis: University of Minnesota Press, 1935. 550 pp. Price, $5.00.

DISEASES OF WOMEN. 8th ed. By Harry Sturgeon Crossen and Robert James Crossen. St. Louis: Mosby, 1935. 999 pp.

TEXTBOOK OF PHYSIOLOGY. 5th ed. By William D. Zoethout. St. Louis: Mosby, 1935. 694 pp. Price, $4.00.

AN INTRODUCTION TO PUBLIC HEALTH. By Harry S. Mustard. New York: Macmillan, 1935. 250 pp. Price, $2.50.

# ASSOCIATION NEWS

## SCIENTIFIC EXHIBITS AT MILWAUKEE

IN the first few years of its existence, the Committee on Scientific Exhibits has avoided setting standards for exhibitions or requirements for participation beyond those necessary for expedient management. Although scientific exhibits for medical and other professional groups and public health exhibits for popular audiences have been common for many years, there was little experience to determine which types of exhibits were best suited to the particular type of professional audience found at American Public Health Association meetings. The policy of the committee therefore has been to accept nearly everything available from reputable sources within space limitations, and even to make an effort to get exhibits which were of general interest for any reason.

Its most outstanding contribution in this respect was the exhibit from the German Hygiene Museum, shown at the Pasadena meeting, for which credit is especially if not wholly due to Dr. W. W. Peter, who in behalf of the committee successfully concluded the preliminary negotiations with the German authorities, which made this showing possible.

Such remarkable contributions, however, can be expected only rarely. In the meantime it is evident that scientific exhibits are classifiable into two groups—those which are strictly scientific, that is, designed for the information and interest of professional people alone; and those which are examples of popular health education as used by official and unofficial health agencies. In addition, the exhibits in recent years have included displays which were pictorial reports of work done, methods of organization, etc., of various types of health organizations, particularly health departments of hostess cities, counties, and states.

The scientific exhibit at Milwaukee exceeded all expectations, both as to size and number of exhibitors. There were 41 separate exhibits covering 10,000 square feet of floor space. Many of the exhibits related to laboratory interests due largely to the splendid efforts of the Laboratory Section Scientific Exhibits Committee, under the chairmanship of Dr. Fred O. Tonney. Milwaukee and the State of Wisconsin provided many valuable exhibits, assembled by Dr. W. J. Egan, chairman of the sub-committee on local exhibits. For the first time, citations of merit were awarded to certain exhibitors for excellence of one kind or another. The committee of judges in making these citations commented on these meritorious exhibits as follows:

Dr. M. Fernan-Nunez, Department of Pathology, Marquette University School of Medicine. *Title: Tropical Diseases in Milwaukee*—Unique and striking method of display, which stimulates interest and illustrates in a simple manner, the methods used to detect the diseases.

Department of Clinical Pathology, University of Wisconsin and State Board of Health of Wisconsin, Laboratory of Hygiene. Dr. W. D. Stovall, Dr. S. B. Pessin and Dr. Lois Almon. *Title: Monilias—Classification and Pathogenicity*—A complete presentation of the subject from the standpoint of the pathologist and mycologist, arranged in an attractive and interesting display in such a way as to give the non-technical observer an idea of the subject and to stimulate his interest.

Public Health Records—The Commonwealth Fund—Dr. W. F. Walker. Demonstrating a unit of public health service records—practical, simple—especially designed for health officers.

Traveling Health Exhibit—Wisconsin Anti-Tuberculosis Association. Dr. Hoyt Dearholt, Director. Effective Visual Exhibit, in drawing and holding attention—teaches that tuberculosis is a community health problem, and what may be done about it.

American Red Cross—Milwaukee County Chapter. Insignia of organization displayed so as to leave no doubt of its sponsor. Arresting figure of nurse who does the work with simple explanation of the two fields of endeavor covered, make up the body of the exhibit. Clear, forceful and simple.

American Medical Association, Chicago, Ill. *Title: What the Public Is Thinking About Health and What the Medical Profession Is Doing About It*—Exhibit aims to show questions asked by the public, and physicians' answers to them. Illuminated chart draws attention to question, and carefully displayed literature the answers. Fairly inexpensive, simple, arresting and convincing.

The increasing interest in scientific exhibits as an important part of the A.P.H.A. Annual Meetings promises well for the success of the scientific exhibits at New Orleans. Information concerning scientific exhibits at the next meeting in that city in the fall of 1936 may be secured by addressing the Committee of Scientific Exhibits, at the headquarters office of the Association.

## APPLICANTS FOR MEMBERSHIP

*The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.*

*Health Officers Section*

L. I. Burrows, M.D., East Central State Teachers College, Ada, Okla., College Physician

C. R. Fargher, M.D., Wenatchee, Wash., Health Officer

M. Flint Haralson, M.D., 424 State Office Bldg., Denver, Colo., Acting Secretary and Executive Officer, State Board of Health

Arthur E. Lien, M.D., Court House, Spokane, Wash., County Health Officer and Physician

William F. Lippitt, M.D., Box 362, San Juan, P. R., Chief, Bureau of General Inspection, Dept. of Health

Ezequiel Martinez Rivera, M.D., Box 128, Hato Rey, P. R., Chief of Public Health Unit

Joseph A. Yuskanish, 121 Allen St., Nesquehoning, Pa., County Health Officer

*Laboratory Section*

Dr. Rafael del Valle Sarraga, P. O. Box 935, San Juan, P. R., Director, Chemical Laboratory, Dept. of Health

Miguel F. Godreau, M.D., Tuberculous Hospital, Guayama, P. R., Medical Director

Ralph S. Muckenfuss, M.D., Foot of E. 15 St., New York, N. Y., Associate Director, New York City Bureau of Laboratories

Stephen A. Osborn, B.S., 622 Globe Bldg., St. Paul, Minn., Economics Laboratory, Inc.

Clementine J. Prior, B.S., 604 Larson Bldg., Yakima, Wash., Clinical and Chemical Laboratory

Luis Saldana-Davila, P. O. Box 403, San Juan, P. R., Bacteriological Technician

William S. Sturges, Ph.D., Cudahy Packing Co., S. Omaha, Nebr., Bacteriologist

*Vital Statistics Section*

William L. Austin, Bureau of the Census, Washington, D. C., Director

Henry L. Porsche, 4967½ Lake Park Ave., Chicago, Ill., Chief Clerk, Board of Health

Herschel M. Wright, State Dept. of Health, Indianapolis, Ind., Registrar, Vital Statistics

*Public Health Engineering Section*

Ilbert O. Lacy, B.S., 1663 Columbia Rd., Washington, D. C., Sanitary Engineer, Resettlement Administration

Harley M. Riley, M.S., State Dept. of Health, Ithaca, N. Y., District Sanitary Engineer

*Industrial Hygiene Section*

Myer S. Bloom, M.D., 110 Oak St., Binghamton, N. Y., Industrial Clinic

*Food and Nutrition Section*

Milton R. Fisher, D.V.M., Municipal Courts Bldg., St. Louis, Mo., Supervisor of Milk Control

Jose Rivera Mundo, Dept. of Health, San Juan, P. R., Chief, Division of Foods and Drugs

A. A. Nichoson, Rm. 1806, 135 E. 42 St., New York, N. Y., Manager, Personnel Dept., Texas Company

*Child Hygiene Section*

Ruth E. Stocking, M.D., State Dept. of Health, Lansing, Mich., on Staff of Bureau of Child Hygiene and Public Health Nursing

*Public Health Education Section*

Helen A. Binnie, M.D., 7609 25 Ave., Kenosha, Wis., formerly Director of County Health Unit

Robert N. McCormick, Ph.D., Ball State Teachers College, Muncie, Ind., Teacher of Physiology, Hygiene and Anatomy

Joseph F. Montague, M.D., 139 E. 36 St., New York, N. Y., Editor, *Health Digest*

Jane Stafford, 2101 Constitution Ave., Washington, D. C., *Science Service*

*Public Health Nursing Section*

Glendora M. Blakely, 301 W. Monroe, Bloomington, Ill., Supervising Nurse

Mrs. Chester C. Bolton, 2301 Wyoming Ave., Washington, D. C., Board Member, N.O.P.H.N.

Doris Kerwin, R.N., 1018 N. Jefferson St., Neenah, Wis., Public Health Nurse, Wisconsin Anti-Tuberculosis Assn.

Ethel O'Connor, R.N., 208 S. Henry, Bay City, Mich., Tuberculosis Nurse

Helen Reinbach, R.N., Black River Falls, Wis., U. S. Indian Field Nurse

Bernice Steele, A.B., Box 224, Bristol, Tenn., Public Health Nurse, Sullivan County Health Dept.

Jane E. Thorstad, R.N., Monroe, La., Public Health Nurse, Ouachita Parish Health Dept.

*Epidemiology Section*

E. I. I. Baty, M.D., Buffalo, Tex., City Health Officer

Howard H. Volan, M.D., 225 Scott Ave., Syracuse, N. Y., Epidemiologist, Dept. of Health

*Unaffiliated*

Ruth H. G. Bassett, R.N., Indian Mountain School, Lakeville, Conn., Resident Nurse, Borgs School

J. Roswell Gallagher, M.D., The Isham Infirmary, Phillips Academy, Andover, Mass., School Physician

Joseph I. Linde, M.D., 45 Livingston St., New Haven, Conn., Director, Child Health Clinics

Josephine Roche, 294, The Treasury, Washington, D. C., Assistant Secretary of the Treasury in Charge of Public Health

Dr. Alfredo Sordelli, Velez Sarsfield 563, Buenos Aires, Argentina, S. A., Director, Instituto Bacteriologico del Departamento Nacional de Higiene

Harry E. Ungerleider, M.D., 393 Seventh Ave., New York, N. Y., Assistant Medical Director, Equitable Life Assurance Society

# NEWS FROM THE FIELD

## OCCUPATIONAL MORBIDITY AND MORTALITY STUDY

THE U. S. Public Health Service, in coöperation with the Works Progress Administration, has included in the national "health inventory" project (see editorial page 1370), a study, the object of which is the attainment of sickness and mortality rates in relation to occupation.

There is no doubt as to the need of this information for effective direction of national, state, and local programs of industrial hygiene and disease prevention in the adult population. From Census data it is estimated that the health of approximately 40 per cent of the total population is affected in varying degrees by their working environment. Thus among the 14 million persons employed in manufacturing and mechanical industries in 1930, more than 900 different occupational exposures to hazardous materials and conditions have been found. Many of these exposures undoubtedly affect health adversely. This supposition is substantiated by the finding of life insurance companies that the life expectancy of industrial workers is 6 to 7 years shorter than that of non-industrial workers. . . . It is the purpose of the Occupational Morbidity and Mortality Study to obtain sickness and death rates for each numerically important disease or disease group according to occupation. Sources of this information are the records of sick benefit associations and the records of personnel departments of companies having sick benefit societies. Information also is being obtained as to raw materials handled, the nature of the end product of each process, and the working conditions surrounding each occupation. The schedule is so arranged that sickness and death rates can be computed for groups exposed to such specific potential health hazards as arsenic, lead, quartz dust, mercury, chromium, extreme temperature changes, dampness, etc. Thus, from a statistical analysis of the schedule, the effects of industrial exposures are measured in terms of occupational morbidity and mortality rates. It is expected that several hundred thousand of these schedules will be obtained by May 1, 1936.

It is anticipated that a number of interesting by-products will arise from this study: as, for example, the measurement of effects of marital status on health and longevity. The relatively high death rate usually recorded for single persons as compared with married persons frequently is ascribed to the factor of selection. Among persons physically able to engage in gainful pursuits, the selective factor may be expected to exert a relatively small influence, since invalids and persons having serious physical impairments would not be found in the population under consideration. Hence from this study the real effect, if any, of marital status upon health may be evaluated.

Information relating to the health of several hundred thousand persons engaged in a wide variety of occupations in about 35 basic industries will be accumulated and analyzed. Thus, from any viewpoint, the potential value of this survey to public health and general well-being in terms of dollars, health, and happiness is incalculable.

### LAKE COUNTY, IND.

THE 1935 General Assembly of Indiana passed a law permitting the establishment of full-time county health units. The Lake County Commissioners on August 28, 1935, by resolution, set up the first full-time county health department in the state. The Commissioner of Health is Dr. William D. Weis, member A.P.H.A. In addition, provision was made for 1 sanitary inspector, 1 stenographer and clerk, and 4 public health nurses, all of whom will be employed as full-time workers after January 1, 1936.

### NOBEL AWARD IN MEDICINE

THE Nobel prize in medicine was awarded to a German professor, Dr. Hans Speemann Frieburg of Breslau, October 24. The award carries with it about $42,000.

### N.O.P.H.N. APPOINTS DIRECTOR

DOROTHY DEMING, R.N., is the new General Director of the National Organization for Public Health Nursing. The Executive Committee made this appointment at the regular meeting on October 30.

Miss Deming has been a member of the N.O.P.H.N. staff since 1927 in the dual capacity of Assistant Director and editor of *Public Health Nursing*. She is familiar with every administrative detail and policy. This, added to her broad previous experience and her personal qualifications, assures unbroken continuance of the organization activities at a very important time in public health nursing development. Miss Deming will assume her new duties early in December.

### NEW YORK HEART ASSOCIATION

A SCIENTIFIC Meeting of the New York Heart Association (Heart Committee of the New York Tuberculosis and Health Association) will be held at the New York Academy of Medicine, December 3. Dr. Ernst P. Boas, Chairman of the Executive Committee, will preside over the meeting. Papers will be presented by Dr. Harold J. Stewart, Associate Professor of Medicine at Cornell University Medical College; and Dr. Archibald G. MacLeod, Associate, Hospital of the Rockefeller Institute.

### BUSHWICK HEALTH CENTER OPENED

ON October 31, Mayor Fiorello H. LaGuardia of the City of New York dedicated the Bushwick District Health Center in Brooklyn. This Center is one of a series now operated by the Department of Health of the City of New York and is part of a project for new health centers being developed under Dr. John L. Rice, Commissioner of Health.

### HEALTH OFFICERS FROM ABROAD

A STUDY tour of foreign medical officers of health, arranged by the Health Section of the League of Nations, began October 31 with the arrival in this country of seven health officers from foreign countries. Those who are participating in this interchange are:

Dr. L. S. Fridericia, Professor of Hygiene, University of Copenhagen

Dr. J. Parisot, Professor of Hygiene, University of Nancy

Prof. R. M. F. Picken, Welsh National School of Medicine, Cardiff

Dr. E. Rietz, Chief Medical Officer of Health, Stockholm

Dr. H. van der Kaa, Chief Health Inspector of the Netherlands, The Hague

Dr. B. Borcic, Chief of Health Service of Jugoslavia

Dr. Dela Johan, Secretary of State, Director of State Institute of Hungary, Budapest

The group was accompanied for a part of their itinerary by Dr. Frank C. Boudreau, Assistant Director of the Health Section of the League of Nations, Geneva. Dr. Boudreau has been the representative of the League

in making the arrangements for the study tour. The itinerary of this group included several days in Washington, a visit to Baltimore where the state and city health departments, as well as Johns Hopkins School of Hygiene were visited; thence the group went to Knoxville, Tenn., to see something of the medical and public health side of the work of the Tennessee Valley Authority. They will go to Chicago to study the work of the Chicago City Health Department. The remainder of their itinerary will include Detroit, Mich., Albany, N. Y., in connection with the work of State Health Department of New York; Boston, Mass., New Haven, Conn., and New York City.

### JACKSON COUNTY, FLORIDA

JACKSON County Health Unit was organized September 1, 1935, at Marianna, Fla.—a 6 piece organization consisting of health officer, 3 public health nurses, sanitary inspector, and secretary clerk. Director of the department is Dr. Paul G. Shell, University of Tennessee, 1931. Dr. Shell received training in public health, School of Public Health, Johns Hopkins University, under provision for medical trainees for the Florida State Board of Health by the U. S. Public Health Service, completing that training on June 30.

The department's budget, $13,000.00, is provided jointly, fifty-fifty, by the County and State Board of Health. Activities are rendered in coöperation with and under the supervision of the State Board of Health, Dr. Henry Hanson, F.A.P.H.A. State Health Officer.

### WEST VIRGINIA MEETING

THE West Virginia Public Health Association held its annual program in connection with the sessions of the State Health Officers Conference at Huntington, October 28 to 30. A program with both information and inspiration was provided which included speakers from outside West Virginia, such as Dr. Iago Galdston of the New York Academy of Medicine; Dr. Paul Padget of Johns Hopkins Medical School; Dr. Kennon Dunham of the University of Cincinnati; Dr. Allen W. Freeman, Dean of the School of Hygiene and Public Health, Johns Hopkins University; Dr. M. V. Ziegler of the U. S. Public Health Service, and Dr. Reginald M. Atwater, Executive Secretary, A.P.H.A.

Separate sessions were held for the health officers, the public health nurses, and the sanitary engineers, and these were followed by a session in which the findings of each group were brought to the attention of the whole conference.

The following officers were elected for the ensuing year:

*President*, Dr. A. J. Kemper, Clarksburg
*1st Vice President*, Dr. W. G. C. Hill, Moundsville
*2nd Vice President*, Dr. R. M. Pedicord, Wheeling
*Secretary-Treasurer*, Dr. John Thames, Charleston
Representative to the Governing Council, A.P.H.A., Dr. John Thames, Charleston

### TEXAS PUBLIC HEALTH ASSOCIATION

THE Texas Public Health Association held its thirteenth annual meeting in Waco, Texas, October 16 to 18. Over two hundred attended the sessions. The first day was devoted to laboratory workers and nurses. The last two days were general sessions. Outstanding speakers were Dr. W. K. Sharpe, Jr., U. S. Public Health Service and William McCraw, Attorney General of Texas.

The next meeting will be held in October, 1936, at Kilgore, Texas. Officers for the ensuing year are: Dr. F. R. Tucker, Nacogdoches, President; Dr. Burke Brewster, Fort Worth, First Vice-President; Edward Robinson, Dal-

las, 2nd Vice-President; Mrs. Ida Levinson, Houston, 3rd Vice-President; H. E. Hargis, 4th Vice-President, and L. E. Bracy, Austin, Secretary-Treasurer.

### SOUTHERN BRANCH ELECTS

AT its Fourth Annual Meeting, held November 19–20 in St. Louis, Mo., the Southern Branch elected the following officers for the forthcoming year:

President: I. C. Riggin, M.D., Richmond, Va.

First Vice-President: C. J. Vaughn, M.D., Lexington, Miss.

Second Vice-President: Frances Montgomery, R.N., Montgomery, Ala.

Third Vice-President: M. Z. Bair, Little Rock, Ark.

Secretary-Treasurer: G. Foard McGinnes, M.D., Richmond, Va.

### MICHIGAN PUBLIC HEALTH ASSOCIATION

NEWLY elected officers of the Michigan Public Health Association are as follows:

President: Garner M. Byington, M.D., Battle Creek.

Vice-President: J. D. Brook, M.D., Grand Rapids.

Directors (re-elected): Fred M. Meader, M.D., Detroit; C. D. Barrett, M.D., Lansing; John L. Lavan, M.D., Kalamazoo.

New Director added: Dr. David Littlejohn, Midland.

These four directors are in addition to the three directors—Dr. V. K. Volk, of Pontiac, William R. Davis, D.D.S., of Lansing, and Mrs. Hugh Gaston, R.N., of Sault Ste Marie, whose terms end next year.

## PERSONALS

DR. FRANK V. CHAPPELL, University of Tennessee—1903, was appointed and has begun his duties as District Health Officer, Jacksonville District, with the Florida State Board of Health, September 1.

Dr. Chappell received training in public health recently in the School of Public Health, Johns Hopkins University, under provision for medical trainees made available to the Florida State Board of Health by the U. S. Public Health Service. He relieves Dr. Thomas E. Morgan, who, through a fellowship in public health granted by the Rockefeller Foundation, is attending the School of Public Health, regular course, Harvard University.

THOMAS M. RIVERS, M.D., member A.P.H.A., of the Rockefeller Institute for Medical Research, New York, delivered the annual Lilly Heard Anderson Lecture in Pediatrics at the Academy of Medicine in Atlanta, Ga., November 14. His subject was "Virus Diseases of the Central Nervous System."

DR. DAVID L. EDSALL, member A.P.H.A., was given an honorary dinner by the Harvard Medical School Alumni Association, at the Harvard Club of Boston, October 23, on the occasion of his retiring as Dean of the Harvard Medical School and School of Public Health. James B. Conant, LL.D., President of Harvard University, presided, and speakers included A. Lawrence Lowell, LL.D., President Emeritus of Harvard, and Dr. Charles S. Burwell, Dean of the Medical School.

### DEATHS

DR. CHARLES E. BANKER, former Chief of the Division of Epidemiology of the New York City Health Department, died November 25. He retired in June, 1935, after 37 years' service with the Department.

HENRY FAIRFIELD OSBORN, Sc.D., President of the American Museum of Natural History, New York, died November 6, at the age of 78.

## CONFERENCES

Dec. 5–7, Annual Conference of the National Society for the Prevention of Blindness, New York, N. Y.

Dec. 27, American Water Works Association—New York Section, New York, N. Y.

Dec. 27, 28, Sixteenth Annual Meeting, American Student Health Association; Hotel Pennsylvania, New York, N. Y.

Dec. 30–31, Fourth Annual Christmas Meeting of the Laboratory Section, Canadian Public Health Association, Toronto, Ont.

Dec. 30–Jan. 4, 1936, Winter Meeting of the American Association for the Advancement of Science and Associated Societies, St. Louis, Mo.

Jan. 27–31, 1936, Fourth International Heating and Ventilating Exposition, Chicago, Ill.

Apr. 1–3, 1936, American Water Works Association—Canadian Section, Hamilton, Ont.

Apr. 22–25, 1936, National Tuberculosis Association, New Orleans, La.

May 11–15, 1936, American Medical Association Convention, Kansas City, Mo.

May 14–16, 1936, American Water Works Association—Pacific Northwest Section, Aberdeen, Washington,

June, 1936, Seventh Annual Meeting. Western Branch, A.P.H.A., Vancouver and Victoria, B. C.

June 8–12, 1936, 56th Annual Convention, American Water Works Association, Los Angeles, Calif.

July 27–31, 1936, Second International Congress on Mental Hygiene, Paris.

Sept. 8–10, 1936, International Union Against Tuberculosis, Lisbon, Portugal.


# *Application for Membership*

**I wish to apply for membership in the American Public Health Association.**

Name .....
Print name in full and give degree

Street and City..... State.....
For correspondence and the Journal

Present public health occupation.....

**REQUIREMENTS:** Persons professionally engaged or interested in public health work are eligible for election as Members of the Association.

**DUES:** Dues of Members are $5.00 per year, which includes an annual subscription to the American Journal of Public Health. Persons joining the Association after July 1 are requested to pay $7.50, covering a year and one half from July, 1935, to December, 1936.

## AMERICAN PUBLIC HEALTH ASSOCIATION

50 WEST 50TH STREET, NEW YORK, N. Y.

# PRELIMINARY PROGRAM

# SIXTY-FOURTH ANNUAL MEETING

## American Public Health Association

MILWAUKEE, OCTOBER 7-10, 1935

THE AMERICAN PUBLIC HEALTH ASSOCIATION
50 West 50th Street New York, N. Y.

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Make your plans to attend now. The Milwaukee Local Committee and the Officers of the Association join in issuing a cordial invitation to you to be present.

Members of the Association and their families are entitled to reduced fares authorized by the railroads for this convention.

# PRELIMINARY PROGRAM OF THE SIXTY-FOURTH ANNUAL MEETING AMERICAN PUBLIC HEALTH ASSOCIATION

MILWAUKEE, WIS., OCTOBER 7–10, 1935.

THE Annual Meeting Program Committee presents the preliminary program of the scientific sessions of the Sixty-fourth Annual Meeting of the American Public Health Association and information concerning meetings of related organizations.

The program of the Fourth Institute on Health Education to be held October 4, 5, and 6 will be found on page 25.

This program is incomplete and perhaps inaccurate in some respects. The affiliations of speakers have been omitted, but will be published in full in the Final Program. Delegates are urged to consult the Final Program, available at the Registration Desk in Mechanics Hall, Milwaukee Auditorium, at the time of the meeting.

*Monday, 9:30 A.M.*

## LABORATORY

*First Session—Juneau Hall South—Auditorium*

**Accurate Standardization of Gold Sol Used in Testing Cerebrospinal Fluid.** B. S. LEVINE, PH.D.

**Diphtheria Toxin and Alum Precipitated Toxoid from Infusion Free Broth.** W. E. BUNNEY, PH.D.

**Serum Disease and the Therapeutic Effect of Diphtheria Antitoxin.** I. DAVIDSOHN, M.D., and L. W. HUNT.

**Further Studies on the Development and Immunizing Value of Tetanus Toxoid.** DAVID H. BERGEY, M.D., DR.P.H., and S. ETRIS.

**Lyophile Dry Sera in the Prevention and Treatment of Infectious Diseases with Particular Reference to the Use of Pooled Adult Convalescent and Hyperimmune Sera.** STUART MUDD, M.D., EARL W. FLOSDORF, PH.D., HARRY EAGLE, M.D., JOSEPH STOKES, JR., M.D., and AIMS C. MCGUINNESS, M.D.

**Further Studies on a Rapid Slide Test for the Serological Diagnosis of Typhoid and Paratyphoid Fevers.** HENRY WELCH, PH.D., and FRIEND LEE MICKLE. (*Motion Picture Illustration.*)

**The Diagnosis of Infectious Mononucleosis in Public Health Laboratories.** C. A. STUART, PH.D., and FRIEND LEE MICKLE.

**An Institutional Outbreak of Infectious Jaundice, Apparently of Non-Spirochetal Origin.** JOSEPH C. WILLETT, D.V.M. (*To be read if time permits; otherwise by title.*)

*Monday, 9:30 A.M.*

## LABORATORY (Cont.)

*First Session—Juneau Hall South—Auditorium*

**A Study of B. Coli Mutabile from the Stools of Diseased and Healthy Babies and Adults.** ANNA DEAN DULANEY. (*To be read if time permits; otherwise by title.*)

**A Practical Method of Determining Skin Test Reactions.** G. HOWARD GOWEN, M.D. (*To be read if time permits; otherwise by title.*)

## EPIDEMIOLOGY

*First Session—Kilbourn Hall—Auditorium*

**Encephalitis of the St. Louis Type in Illinois.** WINSTON H. TUCKER, M.D. (*Stereopticon Illustration.*)

**An Epidemic of Dengue Fever.** HENRY HANSON, M.D.

**The Epidemiology of Malaria in the Philippines.** PAUL F. RUSSELL, M.D.

**Typhoid Carriers: A Study of Their Disease Producing Potentialities Over a Series of Years as Indicated by a Study of Cases.** GAYLORD W. ANDERSON, M.D. (*Stereopticon Illustration.*)

**Some Epidemiological Aspects of Chronic Endemic Dental Fluorosis (Mottled Enamel).** H. TRENDLEY DEAN, D.D.S., and ELIAS ELVOVE, PH.D. (*Stereopticon Illustration.*)

## VITAL STATISTICS

*First Session—Committee Room A—Auditorium*

**Work of the Section Council.** G. E. HARMON, M.D., *Chairman of the Section.*

**Accident Statistics.** (Report of the Committee.) *Chairman,* W. THURBER FALES, SC.D.

**Forms and Methods of Statistical Practice.** (Report of the Committee.)

**Standard Tables for Health Reports.** JOHN COLLINSON, M.D., DR.P.H., *Chairman of Sub-Committee.*

**Practicability of Classifying Certain Sub-Types of Disease.** *Chairman,* A. W. HEDRICH, SC.D.

**Accuracy of Certified Causes of Death.** (Report of the Committee.) *Chairman,* HAVEN EMERSON, M.D.

**Proposed Changes in the List of Causes of Death to Be Submitted to the 1938 International Conference.**

**Report of the Sub-Committee on Stillbirths.**

*Monday, 9:30 A.M.*

## CHILD HYGIENE SECTION AND AMERICAN ASSOCIATION OF SCHOOL PHYSICIANS

*Joint Session—Engleman Hall—Auditorium*

### CHILD HEALTH AT DIFFERENT LEVELS

*Presiding:* LEROY A. WILKES, M.D., *Chairman,* Child Hygiene Section, and CHARLES H. KEENE, M.D., President, American Association of School Physicians.

**The Physical Preparation for School Admission.** RICHARD A. BOLT, M.D., DR.P.H.

**Child Health and the Elementary School.** JOHN T. PHAIR, M.B., D.P.H.

**Health in Secondary Schools.** FRANCIS L. BACON.

**Getting the Child Health Program to the Public.** EVART G. ROUTZAHN.

## PUBLIC HEALTH NURSING

*First Session—Juneau Hall North—Auditorium*

### THE EFFECT OF FEDERAL LEGISLATION ON PUBLIC HEALTH NURSING

**Federal Health Legislation.** CLIFFORD E. WALLER, M.D.

**Effect of Relief Programs on Public Health Nursing in the State:**

**Public and Private Agencies.** RUTH METTINGER, R.N.

**Preparation of Nurses.** EVA F. MACDOUGALL, R.N.

**Developments in Local Programs.** LAURA DRAPER, R.N.

**Some New Emphases in Public Health Nursing.** ALMA C. HAUPT, R.N.

## MENTAL HYGIENE

*Special Session—Plankinton Hall—Auditorium*

*Presiding:* HAVEN EMERSON, M.D.

**Mental Hygiene from the Point of View of the Province.** GRANT FLEMING, M.D., D.P.H.

**Mental Hygiene in the U. S. Public Health Service.** W. L. TREADWAY, M.D.

**Mental Hygiene in a City Health Department.** ELIZABETH ADAMSON, M.D.

**Integrating Mental Hygiene from the Point of View of the Health Officer and the School Physician.** FREDERICK L. PATRY, M.D.

*Discussion.* A. O. DEWEESE, M.D., JOHN SUNDWALL, PH.D., M.D., and B. LIBER, M.D., DR.P.H.

## CONFERENCE OF STATE SANITARY ENGINEERS

*Committee Room D—Auditorium*

*Monday, 12:30 P.M.*

## INDUSTRIAL HYGIENE

*Luncheon Session—English Room—Hotel Schroeder*

**Report of the Committee on Skin Irritants.** *Chairman,* HENRY FIELD SMYTH, M.D., DR.P.H.

**Report of the Committee on Pneumonoconiosis.** *Chairman,* R. R. SAYERS, M.D.

**Report of the Committee on Ventilation and Atmospheric Pollution.** *Chairman,* EMERY R. HAYHURST, M.D., PH.D.

**Membership in the Industrial Hygiene Section.** BERNARD S. COLEMAN.

## INTERNATIONAL SOCIETY OF MEDICAL HEALTH OFFICERS

*Luncheon Session—Banquet Room—Hotel Schroeder*

## PUBLIC HEALTH EDUCATION

*Luncheon Session—Pere Marquette—Hotel Schroeder*

**Technics and Materials Used in Health Education.** EVART G. ROUTZAHN.

*Monday, 2:30 P.M.*

## CHILD HYGIENE AND FOOD AND NUTRITION SECTIONS

*Joint Session—Kilbourn Hall—Auditorium*

### GROWTH AND NUTRITION

*Presiding:* LEROY A. WILKES, M.D., *Chairman,* Child Hygiene Section, and SAMUEL C. PRESCOTT, SC.D.

**Medical Judgments of Nutritional Status.** MAYHEW DERRYBERRY, PH.D.

*Discussion.*

**Growth and Development. Report of Study of Fourteen Years' Observation in Hagerstown, Md.** CARROLL E. PALMER, M.D., PH.D.

*Discussion.*

**Vitamin D and Child Health.** FRED O. TONNEY, M.D.

*Discussion.*

**Vitamin Content of Some Important Foods in the Child's Diet.** CARL R. FELLERS, PH.D.

**Child Health and Nutrition.** ABRAHAM B. SCHWARTZ, M.D.

## HEALTH OFFICERS

*First Session—Engleman Hall—Auditorium*

**Scarlet Fever.** JOHN P. KOEHLER. M.D.

*Discussion.* HENRY F. VAUGHAN, DR.P.H., and WILLIAM H. PARK, M.D.

*Monday, 2:30 P.M.*

## HEALTH OFFICERS (Cont.)

*First Session—Engleman Hall—Auditorium*

**District Health Administration in Large Cities.** JOHN L. RICE, M.D.

*Discussion.* CHARLES F. WILINSKY, M.D., HUNTINGTON WILLIAMS, M.D., and PROF. IRA V. HISCOCK.

**Life History of the Health Departments in 810 Counties.** JOSEPH W. MOUNTIN, M.D.

*Discussion.* HARRY S. MUSTARD, M.D., JOHN A. FERRELL, M.D., DR.P.H., and GREGOIRE F. AMYOT, M.D.. D.P.H.

## LABORATORY

*Second Session—Walker Hall—Auditorium*

### SYMPOSIUM ON DIAGNOSTIC PROCEDURES AND REAGENTS

*Presiding:* W. H. KELLOGG, M.D., *Chairman* of the Laboratory Section, WILLIAM D. STOVALL, M.D., *Chairman,* Standard Methods Committee on Diagnostic Procedures and Reagents, and A. PARKER HITCHENS, M.D., *Chairman,* Coördinating Committee on Standard Methods.

**The Significance of the Small Variety of Endameba Histolytica Cysts.** BERTHA KAPLAN SPECTOR, M.D.

**Practical Criteria and Methods for the Identification of Hemolytic Streptococci.** JULIA M. COFFEY.

**Some Practical Considerations in Bacillus Pertussis Vaccine Preparation.** GRACE ELDERING and PEARL KENDRICK, SC.D.

**The Diagnosis of Gonococcal Infections by the Culture Method.** CHARLES M. CARPENTER, D.V.M., PH.D., M.D.

**The Cultural Diagnosis of Tuberculosis.** A. L. MACNABB, D.V.M.

**Early Recognition of Undulant Fever by Laboratory Methods.** G. D. CUMMINGS, PH.D.

## LABORATORY

*Third Session—Juneau Hall South—Auditorium*

### MILK AND ITS RELATION TO MILK-BORNE DISEASE

*Presiding:* ROBERT S. BREED, PH.D., *Chairman,* Standard Methods Committee on the Examination of Dairy and Food Products, and A. PARKER HITCHENS, M.D., *Chairman,* Coördinating Committee on Standard Methods.

**The Incidence and Significance of Hemolytic Streptococci in Cultures from a Selected Group of Milk Handlers.** FRANKLIN M. FOOTE, M.D., DR.P.H., HENRY WELCH, PH.D., D. EVELYN WEST, and EARLE K. BORMAN.

*Monday, 2:30 P.M.*

## LABORATORY (Cont.)

*Third Session—Juneau Hall South—Auditorium*

**Some Studies in Bovine Mastitis in Relation to Milk-Borne Epidemics.** D. J. DAVIS, M.D., PH.D. (*Stereopticon Illustration.*)

**Detection of Shedders of Streptococci Responsible for Infectious Bovine Mastitis.** W. N. PLASTRIDGE, PH.D.

**The Influence of Streptococcic Mastitis on High Quality Milk Production.** C. S. BRYAN.

**The Identification of Certain of the Species of Streptococci.** G. J. HUCKER, PH.D., and MARION A. SNYDER.

**Attainable Standards in Bacterial Counts of Raw and Pasteurized Milk.** M. E. BARNES, M.D.

## PUBLIC HEALTH ENGINEERING SECTION AND CONFERENCE OF STATE SANITARY ENGINEERS

*Joint Session—Juneau Hall North—Auditorium*

*Presiding:* W. J. SCOTT, *Chairman,* Public Health Engineering Section, and ARTHUR D. WESTON, *Chairman,* Conference of State Sanitary Engineers.

**Dry Heat Sterilization of Milk Utensils.** (Report of the Joint Committee on Milk Supply.) *Chairman,* C. A. HOLMQUIST.

**Sanitation of Bathing Places.** (Report of the Joint Committee on Bathing Places.) *Chairman,* W. J. SCOTT.

**Report of the Joint Committee on Rural Sanitation.** *Chairman,* H. E. MILLER, C.E. (*Presented here by title only. Will be read in full in second session on Tuesday P.M.*)

**Recent Developments in Plumbing as Related to Public Health.** (Report of the Joint Committee on Plumbing.) *Chairman,* JOEL I. CONNOLLY.

**Status of Water Pollution Abatement in the United States.** H. R. CROHURST.

*Discussion.* ABEL WOLMAN and E. S. TISDALE.

*Monday, 4:30 P.M.*

## GOVERNING COUNCIL

*Plankinton Hall—Auditorium*

All members and Fellows are invited and urged to attend. The President will present to the membership Dr. Reginald M. Atwater, Executive Secretary. There will be opportunity for open discussion of Association problems.

*Monday, 6:30 P.M.*

## PUBLIC HEALTH EDUCATION

*Dinner Session—English Room—Hotel Schroeder*

Closed Business Session—for Fellows and Members of the Section.

## ASSOCIATION OF WOMEN IN PUBLIC HEALTH

*Dinner Session—Pere Marquette Room—Hotel Schroeder*

*Monday, 8:00 P.M.*

## FIRST GENERAL SESSION

*Arena—Auditorium*

**Invocation.**

**Addresses of Welcome:**

**Address of the President of the American Public Health Association.** E. L. BISHOP, M.D., C.P.H.

**Announcement of Sedgwick Memorial Medal Award.**

*Reception to the President and the President-elect. Ball Room, Hotel Schroeder.*

*Dancing. Ball Room, Hotel Schroeder.*

*Tuesday, 8:00 A.M.*

## MASSACHUSETTS INSTITUTE OF TECHNOLOGY ALUMNI

*Breakfast Session—Parlor B—Hotel Schroeder*

*Tuesday, 9:30 A.M.*

## HEALTH OFFICERS

*Second Session—Plankinton Hall—Auditorium*

SYMPOSIUM ON SOME WINNING FEATURES FROM THE FIRST RURAL HEALTH CONSERVATION CONTEST

**Why a Rural Contest?** WATSON S. RANKIN, M.D.

**Coördinating the County for Health.** JOHN J. SIPPY, M.D.

**Getting Financial Support.** T. J. MCCAMANT, M.D.

**School Medical Services.** JOHN J. LENTZ, M.D.

Subject and Speaker to be announced.

**Rural Tuberculosis: A Special Problem.** REGINALD M. ATWATER, M.D., DR.P.H.

*Discussion.* A. J. CHESLEY, M.D., MATTHIAS NICOLL, JR., M.D., and MILLARD E. WINCHESTER, M.D., DR.P.H.

*Tuesday, 9:30 A.M.*

## LABORATORY

*Fourth Session—Committee Room A—Auditorium*

### SYMPOSIUM ON WATER AND SEWAGE PROBLEMS

*Presiding:* JOHN F. NORTON, PH.D., *Chairman,* Standard Methods Committee on Examination of Water and Sewage, and A. PARKER HITCHENS, M.D., *Chairman,* Coördinating Committee on Standard Methods.

**Comparative Studies of Media for the Determination of the Coli-Aerogenes Group in Water Analysis.** C. C. RUCHHOFT.

**Laboratory Control of Water Purification Plants.** HARRY E. JORDAN.

**The Determination and Interpretation of Chlorine Residuals.** A. E. GRIFFIN.

**Report of the Standard Methods Committee on Examination of Water and Sewage.** *Chairman,* JOHN F. NORTON, PH.D.

**Microscopic Methods for Stream Examination and Their Interpretation.** T. A. OLSON.

**A Study of Acid-Fast Bacilli and Streptococci in the Effluent from the Sewage Plant of a Tuberculosis Sanatorium.** H. S. WILLIS, M.D., and RUBY G. KELLY.

**Multiplication of B. Coli After Sewage Chlorination.** WILLEM RUDOLFS, PH.D.

**Chemical Treatment of Sewage.** A. M. BUSWELL, PH.D.

## LABORATORY

*Fifth Session—Walker Hall—Auditorium*

### PROPHYLACTIC AND THERAPEUTIC VACCINATION—VIRUSES

*Presiding:* W. H. KELLOGG, M.D., *Chairman,* Laboratory Section, and RUTH GILBERT, M.D., *Vice Chairman.*

**Experience in the Past 40 Years in the Production of Smallpox Vaccine.** W. F. ELGIN, M.D.

**The Response to Rabies Vaccine Prophylaxis as Shown by Protection Tests.** JOHN REICHEL, V.M.D., and J. E. SCHNEIDER, V.M.D.

**A Quantitative Measure of the Immunizing Effect of Semple Rabies Vaccine by Mouse Inoculation.** LESLIE T. WEBSTER, M.D., and JAMES R. DAWSON, JR., M.D.

**Further Studies on Tetanus Toxiod.** F. G. JONES. (*Stereopticon Illustration.*)

**Oral Immunization against Upper Respiratory Infections.** GEORGE E. ROCKWELL, M.D.

**Active Immunization against Poliomyelitis.** MAURICE BRODIE, M.D., and WILLIAM H. PARK, M.D.

*Tuesday, 9:30 A.M.*

## PUBLIC HEALTH ENGINEERING

*First Session—Juneau Hall South—Auditorium*

**The Application of Limiting Standards of Pollution of Waterways.** (Report of the Committee on Waterways Pollution.) *Chairman,* L. F. WARRICK.

*Discussion.* H. W. STREETER.

**A Comparison of Practice in Cannery Waste Treatment in England and the United States.** H. W. RUF.

*Discussion.* F. HOLMAN WARING.

**Chemical Treatment of Sewage.** (Report of the Committee on Sewage Disposal.) *Chairman,* LANGDON PEARSE.

**A Review of Operating Results from Chemical Precipitation Sewage Treatment Plants.** F. M. VEATCH.

*Discussion.* HARRY H. HENDON.

**Report of the Section Committee on Fellowship and Membership.** *Chairman,* MORRIS M. COHN.

*Section Business.*

## INDUSTRIAL HYGIENE

*First Session—Committee Room D—Auditorium*

**Address of the Chairman.** HENRY H. KESSLER, M.D., PH.D.

**The Course in Industrial Hygiene at the University of Michigan.** EMORY W. SINK, M.D.

**The Practical Application of an Industrial Health Appraisal Form.** LEVERETT D. BRISTOL, M.D., DR.P.H.

**Dust Determination.** E. C. BARNES.

**Dermatitis from Synthetic Resins and Waxes.** LOUIS SCHWARTZ, M.D.

## FOOD AND NUTRITION

*First Session—Juneau Hall North—Auditorium*

**Food Fallacies and Nutritional Quackery.** (Report of the Committee on Nutritional Problems.) *Chairman,* D. BREESE JONES, PH.D.

**Present Status of the Vitamin B Complex.** CONRAD A. ELVEHJEM, PH.D.

**American Medical Association Committee on Foods and Its Work.** MORRIS FISHBEIN, M.D.

**Studies on the Effect of Diet upon Host Resistance to Infection in Mice.** CHARLES F. CHURCH, M.D.

**Need for New Legislation for Food and Drug Control.** W. G. CAMPBELL.

*Tuesday, 9:30 A.M.*

## AMERICAN ASSOCIATION OF SCHOOL PHYSICIANS

*First Session—Kilbourn Hall, Auditorium*

For program see page 22.

## PUBLIC HEALTH EDUCATION

*First Session—Engleman Hall—Auditorium*

**The Psychologic Factors of Health Education. Factors in a Community Such as Race, Habits and Customs Which Must Be Considered in Organization for Health Education.** IAGO GALDSTON, M.D.

**Why Does the Average Man Change His Habits?** MAUD WATSON, PH.D.

**The Challenge of Commercial Advertising to Health Education.** HOMER N. CALVER.

## STATE REGISTRATION EXECUTIVES

*English Room—Hotel Schroeder*

*Tuesday, 12:30 P.M.*

## PUBLIC HEALTH NURSING

*Luncheon Session—Banquet Room—Hotel Schroeder*

**Report on State Problems.** MARION W. SHEAHAN, R.N.

*Section Business.*

## DIPHTHERIA IMMUNIZATION

*Special Luncheon—Ball Room—Hotel Schroeder*

Program to be Announced

*Presiding:*

## DELTA OMEGA

*Luncheon Session—Pere Marquette Room—Hotel Schroeder*

## NATIONAL COMMITTEE OF HEALTH COUNCIL EXECUTIVES

*Luncheon Session—Parlor E—Hotel Schroeder*

*Tuesday, 2:30 P.M.*

## PUBLIC HEALTH ENGINEERING

*Second Session—Juneau Hall South—Auditorium*

**The Water Supply and Water Purification Works of the Milwaukee Metropolitan Area.** JOSEPH P. SCHWADA.

*Discussion.* H. W. STREETER.

**Sanitation Problems of a Large Circus and Practical Methods of Solution.** H. E. MILLER, C.E.

*Discussion.*

**Special Problems in Park Sanitation.** (Report of the Committee on Promotion of Environmental Sanitation.) *Sub-Chairman,* JANE H. RIDER.

**Improving Protection of Health in Summer Camps.** G. O. PIERCE.

*Discussion.* EDWARD D. RICH, C.E.

**Report of the Committee on Rural Sanitation.** *Chairman,* H. E. MILLER, C.E.

## LABORATORY

*Sixth Session—Juneau Hall North—Auditorium*

### SYMPOSIUM ON PRESENT STATUS OF AND RECENT PROGRESS IN BIOLOGICAL PRODUCTS

*Presiding:* W. H. KELLOGG, M.D., *Chairman,* Laboratory Section, and WILLIAM H. PARK, M.D., *Chairman,* Committee on Biological Products.

## LABORATORY, FOOD AND NUTRITION, AND PUBLIC HEALTH ENGINEERING SECTIONS

*Joint Session—Plankinton Hall—Auditorium*

### SYMPOSIUM ON STANDARD METHODS FOR THE EXAMINATION OF SHELLFISH

*Presiding:* W. H. KELLOGG, M.D., *Chairman,* Laboratory Section, SAMUEL C. PRESCOTT, SC.D., *Chairman,* Food and Nutrition Section, and W. J. SCOTT, *Chairman,* Public Health Engineering Section.

**The Shellfish Report from the Standpoint of Laboratory Methods.** C. A. PERRY, SC.D.

*Discussion.* W. R. BERRY.

**The Shellfish Report from the Standpoint of the Control of Shellfish in Interstate Shipments.** ALBERT C. HUNTER, PH.D.

**The Shellfish Report from the Standpoint of the Sanitary Engineer.** LAWRENCE M. FISHER, C.E., D.P.H.

*Discussion.* ABEL WOLMAN.

**The Biology of the Oyster in Its Relationship to Sanitation.** PAUL S. GALTSOFF, PH.D.

*Tuesday, 2:30 P.M.*

## COMMITTEE ON ADMINISTRATIVE PRACTICE

*Special Session—Engleman Hall—Auditorium*

FIFTEENTH ANNIVERSARY OF THE COMMITTEE ON ADMINISTRATIVE PRACTICE

*Presiding:*

**The Early History of the Committee on Administrative Practice.** LOUIS I. DUBLIN, PH.D.

**Fifteen Years of the Committee on Administrative Practice.** C.-E. A. WINSLOW, DR.P.H.

**Committee on Administrative Practice from the Viewpoint of a Health Officer.** JOHN L. RICE, M.D.

*Discussion*

## VITAL STATISTICS

*Second Session—Committee Room A—Auditorium*

REGISTRATION PROBLEMS

(Program prepared by the Association of State Registration Executives. STEWART G. THOMPSON, D.P.H., President)

**The Legal Importance of Records.** WILLIAM C. WELLING.

**A New Method of Determining Birth Registration Trends, and the Accuracy of Registration for Cities During Any Year.** L. W. HUTCHCROFT.

**Problems in Rural Registration.** RICHARD N. WHITFIELD, M.D.

**Registration of Births Out of Wedlock.** (Report of the Committee.) *Chairman,* J. V. DEPORTE, PH.D.

**Securing Birth Registration.** Round Table. *Presiding:* W. J. V. DEACON, M.D., DR.P.H.

*Section Business.*

## INDUSTRIAL HYGIENE

*Second Session—Walker Hall—Auditorium*

**Report of the Committee on Lead Poisoning** *Chairman,* ALBERT S. GRAY, M.D.

**Ten Years' Experience with the Basophilic Aggregation Test for Lead Absorption and Lead Poisoning.** CAREY P. MCCORD, M.D., FRANCIS R. HOLDEN, PH.D., and JAN JOHNSTON.

**Clinical Studies on Lead Absorption in the Human, III—Blood Pressure Observations.** ELSTON L. BELKNAP, M.D.

**Pulmonary Asbestosis—Incidence and Prognosis.** JOHN DONNELLY, M.D.

*Section Business.*

*Tuesday, 2:30 P.M.*

## CHILD HYGIENE

*First Session—Kilbourn Hall—Auditorium*

### MATERNAL AND NEONATAL HYGIENE

**New Haven Studies of Prenatal Care.** MARGARET TYLER, M.D.

*Discussion.*

**Nursing Services in the Rural Maternal Hygiene Programs.** PEARL MCIVER, R.N.

*Discussion.*

**Fetal and Neonatal Mortality Studies and Recommendations.** FRED L. ADAIR, M.D., and EDITH POTTER, M.D.

*Discussion.*

*Section Business.*

*Tuesday, 6:15 P.M.*

## INTERNATIONAL SOCIETY OF MEDICAL HEALTH OFFICERS

*Dinner Session—Ball Room—Hotel Schroeder*

*(Through the courtesy of the Krim Ko Company, Chicago, Ill.)*

Introduction of Guests.

**Our Changing Times.** MORRIS FISHBEIN, M.D.

*Tuesday, 6:30 P.M.*

## PUBLIC HEALTH ENGINEERING SECTION AND CONFERENCE OF STATE SANITARY ENGINEERS

*Pere Marquette Room—Hotel Schroeder*

Annual Engineers' Stag Dinner Party

*Tuesday, 8:45 P.M.*

## PUBLIC HEALTH IN A PROGRAM OF SOCIAL SECURITY

*(Under the Auspices of the Health Officers Section)*

*Special Session—Arena—Auditorium*

Program to be Announced

*Presiding:* E. L. BISHOP, M.D., C.P.H.

*Wednesday, 8:00 A.M.*

## JOHNS HOPKINS ALUMNI

*Breakfast Session—Parlor B—Hotel Schroeder*

## HARVARD UNIVERSITY ALUMNI

*Breakfast Session—Parlor C—Hotel Schroeder*

*Wednesday, 9:30 A.M.*

## INDUSTRIAL HYGIENE

*Third Session—Walker Hall—Auditorium*

**Report of the Committee on Standard Practices in the Problem of Compensation of Occupational Diseases.** *Chairman,* HENRY H. KESSLER, M.D., PH.D.

**Respiratory Disease Due to Dust Among Anthracite Miners.** R. R. SAYERS, M.D.

### SYMPOSIUM ON OCCUPATIONAL DISEASES

**Practical Aspects of Occupational Disease Prevention.** J. A. BRITTON, M.D.

**Engineering Control of Occupational Diseases.** J. J. BLOOMFIELD.

**Public Health Aspects of Occupational Disease Control.** C. O. SAPPINGTON, M.D., DR.P.H.

## HEALTH OFFICERS AND FOOD AND NUTRITION SECTIONS AND ASSOCIATION OF DAIRY, FOOD AND DRUG OFFICIALS

*Joint Session—Plankinton Hall—Auditorium*

### SYMPOSIUM ON THE PUBLIC HEALTH SIGNIFICANCE OF POISONOUS SUBSTANCES IN FOOD

*Presiding:* LEON BANOV, M.D., *Chairman,* Health Officers Section, SAMUEL C. PRESCOTT, SC.D., *Chairman,* Food and Nutrition Section, and HENRY HOFFMAN, JR., President, Association of Dairy, Food and Drug Officials.

**Federal Control of Spray Residues on Fruits and Vegetables.** W. G. CAMPBELL.

**State Control of Spray Residues.** WILLIAM C. GEAGLEY.

**Pharmacology of Small Amounts of Arsenic and Lead.** A. J. CARLSON, M.D.

**Spray Residues from the Viewpoint of the State Health Officer.** WILLIAM F. COGSWELL, M.D.

**Spray Residues from the Viewpoint of the City Health Officer.** J. C. GEIGER, M.D., DR.P.H., and GEORGE H. BECKER, M.D.

*Discussion.* FRED W. TANNER, PH.D.

*Wednesday, 9:30 A.M.*

## PUBLIC HEALTH NURSING AND EPIDEMIOLOGY SECTIONS

*Joint Session—Kilbourn Hall—Auditorium*

### RECENT FINDINGS IN CONNECTION WITH THE INVESTIGATION OF CERTAIN COMMUNICABLE DISEASES

*Presiding:* PEARL MCIVER, R.N., *Chairman,* Public Health Nursing Section, and GEORGE H. RAMSEY, M.D., *Chairman,* Epidemiology Section.

**Whooping Cough and Measles Mortality and Morbidity.** HAVEN EMERSON, M.D.

**Contribution of the Nurse to Communicable Disease Control.** Speaker to be announced.

**Relationship of the Public Health Nurse to the Part-Time Local Health Officer in Communicable Disease Work.** MARGARET G. ARNSTEIN, R.N.

**Tuberculosis Studies in Tennessee: A Clinic Study with Reference to Epidemiology within the Family.** H. C. STEWART, M.D., D.P.H., R. S. GASS, M.D., and RUTH R. PUFFER.

**How Tuberculosis Spreads in a Rural Community.** JEAN DOWNES.

*Discussion.*

## LABORATORY

*Seventh Session—Juneau Hall South—Auditorium*

**Address of the Chairman of the Laboratory Section.** W. H. KELLOGG, M.D.

*Section Business.*

**Report of the Committee on Section Representation on the Governing Council.** *Chairman,* FRIEND LEE MICKLE.

**Report of the Committee on Scientific Exhibits.** *Chairman,* FRED O. TONNEY, M.D.

**Report of the Committee on Aspects of Veterinary Public Health.** *Chairman,* R. V. STONE, D.V.M.

**Report of the Committee on Advisability of Laboratory Examination of Food Handlers.** *Chairman,* MINNA CROOKS YOUNG.

**Report of the Committee on Biological Products.** *Chairman,* WILLIAM H. PARK, M.D.

**Report of the Coördinating Committee on Standard Methods.** *Chairman,* A. PARKER HITCHENS, M.D.

***Report of the Standard Methods Committee on Diagnostic Procedures and Reagents.** *Chairman,* W. D. STOVALL, M.D.

***Report of the Standard Methods Committee on Examination of Dairy and Food Products.** *Chairman,* ROBERT S. BREED, PH.D.

***Report of the Standard Methods Committee on Examination of Water and Sewage.** *Chairman,* JOHN F. NORTON, PH.D. (Full report given in the Fourth Session, Tuesday A.M.)

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* Followed by Reports of Referees approved by Chairmen of Committees.

*Wednesday, 9:30 A.M.*

## LABORATORY (Cont.)

*Seventh Session—Juneau Hall South—Auditorium*

**Report of the Committee on Water Pollution Studies.** *Chairman,* JAMES A. NEWLANDS.

**Report of the Committee on Milk Pasteurization Studies.** *Chairman,* ROBERT S. BREED, PH.D.

**Reports of Representatives on Committees Outside of the Laboratory Section.**

## VITAL STATISTICS

*Third Session—Committee Room A—Auditorium*

**The Development of Vital Statistics in the Bureau of the Census.** HALBERT L. DUNN, M.D.

**The Use of Tabulating Machinery for Indexing and General Tabulation in the Vital Statistics Office.** GEORGE W. BAEHNE.

**Confidential Inquiry on Causes of Death.** (Report of the Committee.) *Secretary,* MARJORIE T. BELLOWS.

**Residence Allocation.** (Report of the Committee.) *Chairman,* J. V. DEPORTE, PH.D.

## PUBLIC HEALTH EDUCATION

*Second Session—Juneau Hall North—Auditorium*

**How Community Organizations May Be Interested in the Official Health Program.** W. W. BAUER, M.D.

**What Set-up and What Percentage of the Budget of a Health Department Should Be Allowed for Health Education?** PROF. IRA V. HISCOCK.

**Evaluating Health Education Programs.** WILLIAM P. SHEPARD, M.D.

## AMERICAN ASSOCIATION OF SCHOOL PHYSICIANS

*Second Session—Pere Marquette Room, Hotel Schroeder*

For program see page 22.

*Wednesday, 12:30 P.M.*

## AMERICAN ASSOCIATION OF SCHOOL PHYSICIANS

*Luncheon Session—Pere Marquette Room—Hotel Schroeder*

For program see page 22.

*Wednesday, 12:30 P.M.*

## PROFESSIONAL EDUCATION

*Special Luncheon Session—Banquet Room—Hotel Schroeder*

*Presiding:* W. S. LEATHERS, M.D., *Chairman,* Committee on Professional Education.

Title to be announced. CLIFFORD E. WALLER, M.D.

Title to be announced. ALLEN W. FREEMAN, M.D.

Title to be announced. ABEL WOLMAN.

## FOOD AND NUTRITION SECTION

*Luncheon Session—English Room—Hotel Schroeder*

*Section Business.*

*Wednesday, 7:00 P.M.*

## SECOND GENERAL SESSION

*Banquet—Ball Room—Hotel Schroeder*

**Address of the President-Elect of the American Public Health Association.** WALTER H. BROWN, M.D.

**Announcement of Health Conservation Contest Awards.**

*Dancing.*

*Thursday, 9:30 A.M.*

## PUBLIC HEALTH EDUCATION AND PUBLIC HEALTH NURSING SECTIONS AND AMERICAN ASSOCIATION OF SCHOOL PHYSICIANS

*Joint Session—Kilbourn Hall—Auditorium*

### HEALTH TRAINING AND INSTRUCTION IN SCHOOLS

*Presiding:* MARJORIE DELAVAN, *Chairman,* Public Health Education Section, and CHARLES H. KEENE, M.D., President, American Association of School Physicians.

**Why Health Education Programs in Schools?** CHARLES C. WILSON, M.D.

*Discussion.*

**The Part Played by the School Nurse.** ELMA ROOD, R.N.

*Discussion.*

**What the School Physician May Do for Health Education.** HAROLD H. MITCHELL, M.D., C.P.H.

*Discussion.*

**The Integration of the School Health Program with Community Health Education.** VAUGHN S. BLANCHARD.

*Discussion.*

*Thursday, 9:30 A.M.*

## PUBLIC HEALTH ENGINEERING

*Third Session—Juneau Hall North—Auditorium*

**Factors Affecting Work Program of Municipal Public Health Engineers.** (Report of the Committee on Municipal Public Health Engineering.) *Chairman,* WILLIAM H. CARY, JR.

**Report of the Committee on Noise.** *Chairman,* CHARLES R. COX.

**Report of the Committee on Scope and Policy.** *Chairman,* HAROLD A. WHITTAKER.

**Plumbing Hazard Survey of Pasteurization Plants.** W. SCOTT JOHNSON.

*Discussion.* C. A. HOLMQUIST.

**Industrial Sanitation as a Public Health Engineering Activity.** CHARLES L. POOL.

*Discussion.*

**Sanitary Air Control.** W. F. WELLS. (*To be read by title only.*)

## EPIDEMIOLOGY

*Second Session—Juneau Hall South—Auditorium*

**The Epidemiology of Lobar Pneumonia—Institutional Outbreaks of Pneumococcus Infection.** WILSON G. SMILLIE, M.D., DR.P.H., and FREDERICK S. LEEDER, M.D., D.P.H. (*Stereopticon Illustration.*)

**Whooping Cough in Surveyed Populations.** EDGAR SYDENSTRICKER and RALPH E. WHEELER, M.D., D.P.H. (*Stereopticon Illustration.*)

**Culturing of Vaccine Virus in Vitro for Use in Human Beings.** THOMAS M. RIVERS, M.D.

**Immunological Application of Placental Extracts.** ELLIOT S. ROBINSON, M.D., PH.D., and CHARLES F. MCKHANN, M.D. (*Stereopticon Illustration.*)

**Comparative Epidemiological Survey of Scarlet Fever in the Colored Population of Richmond as Compared to the White.** W. ARKELL BROWNE, M.D., C.P.H.

## CHILD HYGIENE

*Second Session—Engleman Hall—Auditorium*

### PROVIDING MEDICAL SERVICE FOR THE CHILD

**The Medical Society of New Jersey, Official Organization Effort and Coöperation in Community Service.** LEROY A. WILKES, M.D.

**Efforts of the American Academy of Pediatrics as Directed Toward Child Health.** CLIFFORD GRULEE, M.D.

**Doctors Will Coöperate.** W. W. BAUER, M.D.

**The Health Officer.** HENRY F. VAUGHAN, DR.P.H.

*Discussion.* J. LOUIS NEFF, WILLIAM J. BURNS, and GEORGE M. LYON, M.D.

*Thursday, 9:30 A.M.*

## LABORATORY AND FOOD AND NUTRITION SECTIONS

*Joint Session—Plankinton Hall—Auditorium*

*Invitation to attend extended to members of the International Association of Dairy and Milk Inspectors*

*Presiding:* W. H. KELLOGG, M.D., *Chairman,* Laboratory Section, and SAMUEL C. PRESCOTT, SC.D., *Chairman,* Food and Nutrition Section.

### SYMPOSIUM ON STANDARD METHODS OF MILK ANALYSIS

**Evaluation of Certain Media for the Detection of Colon Organisms in Milk.** C. N. STARK, PH.D.

**The Standardization of the Methylene Blue Reduction Test by the Use of Methylene Blue Thiocyanate.** H. R. THORNTON, PH.D., and R. B. SANDIN.

**An Improved Agar for Use in Making Bacterial Counts from Milk.** CHESTER S. BOWERS, and G. J. HUCKER, PH.D.

**Relation Between the Temperature of Incubation and the Agar Plate Counts Obtained from Milk Samples.** M. W. YALE, PH.D., and C. S. PEDERSON, PH.D.

**Methods for the Bio-Assay of Milk.** E. M. NELSON, PH.D.

**Report of the Committee on Milk and Dairy Products of the Food and Nutrition Section.** *Chairman,* WILLIAM B. PALMER.

## VITAL STATISTICS

*Fourth Session—Committee Room A—Auditorium*

### CONSUMER DEMAND FOR VITAL STATISTICS

**What Are the Needs of:**

**The Health Officer.** LESTER A. ROUND, PH.D.

**The Epidemiologist.** JAMES A. DOULL, M.D., DR.P.H.

**The Child Hygienist.** MARTHA M. ELIOT, M.D.

**The Industrial Hygienist.** A. J. LANZA, M.D.

**The Health Educator.** CHARLES F. BOLDUAN, M.D.

**The Field of Demography.** PROF. WARREN S. THOMPSON.

**Social Security Agencies.** FREDERICK F. STEPHAN.

**Viewpoint of the Registrar.** STEWART G. THOMPSON, D.P.H.

*Discussion.* T. F. MURPHY, M.D.

*Thursday, 2:30 P.M.*

## FOOD AND NUTRITION

*Second Session—Walker Hall—Auditorium*

**Refrigeration of Foods and Its Relation to Present-day Public Health.** (Report of the Committee on Foods.) *Chairman,* BERNARD E. PROCTOR, PH.D.

**Efficiency of Methods and Products for the Sterilization of Beverage Glasses.** E. D. DEVEREUX, PH.D., and W. L. MALLMANN, PH.D.

**Detection and Significance of Escherichia Coli in Commercial Fish and Fillets.** FRANCIS P. GRIFFITHS, PH.D., and JAMES E. FULLER, PH.D.

**Report of the Committee on Microbiological Examination of Foods.** *Chairman,* LAWRENCE H. JAMES, PH.D.

**Observations on the Bacteria Causing Food Poisoning.** *Address of the Chairman of the Section,* SAMUEL C. PRESCOTT, SC.D.

## LABORATORY

*Eighth Session—Juneau Hall South—Auditorium*

### PROPHYLACTIC AND THERAPEUTIC VACCINATION—BACTERIAL VACCINES

*Presiding:* W. H. KELLOGG, M.D., *Chairman,* and RUTH GILBERT, M.D., *Vice Chairman,* Laboratory Section.

**Report of the Sub-Committee to Study Efficacy of Typhoid Vaccines.** *Chairman,* T. F. SELLERS, M.D.

**Typhoid Vaccine Studies: Investigation of Toxicity and Antigenic Properties of Selected Strains of the Typhoid Organism.** COL. J. F. SILER.

**The Known and Unknown of Bacillus Pertussis Vaccine.** LOUIS W. SAUER, M.D.

**Progress Report on Pertussis Immunization.** PEARL KENDRICK, SC.D., and GRACE ELDERING.

**Treatment of Undulant Fever.** I. FOREST HUDDLESON, D.V.M.

**The Specific Treatment of Brucella Infections in Man.** CHARLES M. CARPENTER, D.V.M., PH.D., M.D.

## LABORATORY

*Ninth Session—Juneau Hall North—Auditorium*

### SYMPOSIUM ON ANIMAL DISEASES AFFECTING MAN

*Presiding:* R. V. STONE, D.V.M., *Chairman,* Committee on Aspects of Veterinary Public Health.

**Can the Health Officer Safely Utilize Prophylactic Immunization as the Sole Means to Control Canine Rabies?** HARRY W. SCHOENING, V.M.D.

**Veterinary Service and Rural Public Health.** WARD GILTNER, D.V.M., DR.P.H.

*Thursday, 2:30 P.M.*

## LABORATORY (Cont.)

*Ninth Session—Juneau Hall North—Auditorium*

**Known Factors in Transmissibility and Control of Tuberculosis from the Bovine to the Human.** E. A. WATSON, D.V.S.

## PUBLIC HEALTH ENGINEERING SECTION, ASSOCIATION OF DAIRY, FOOD AND DRUG OFFICIALS, AND INTERNATIONAL ASSOCIATION OF DAIRY AND MILK INSPECTORS

*Joint Session—Plankinton Hall—Auditorium*

### SYMPOSIUM ON MILK SUBJECTS

*Presiding:* W. J. SCOTT, *Chairman,* Public Health Engineering Section, HENRY HOFFMAN, JR., President, Association of Dairy, Food and Drug Officials, and C. K. JOHNS, President, International Association of Dairy and Milk Inspectors.

**A Planned Milk Control for the State and Nation.** LESLIE C. FRANK, C.E.

*Discussion.* J. R. JENNINGS, and S. V. LAYSON.

**Studies with a Different Method of Appraising Standard Plate Counts.** C. L. LEETE.

*Discussion.* V. M. EHLERS, C.E.

**Educational Work as a Factor in Increasing the Extent of Pasteurization.** PROF. IRA V. HISCOCK.

*Discussion.* HERMAN N. BUNDESEN, M.D., SC.D., and R. W. CUNLIFFE.

# MEETINGS OF OTHER ORGANIZATIONS

## ASSOCIATION OF DAIRY, FOOD AND DRUG OFFICIALS

*Tuesday, October 8, to Friday, October 11, Headquarters, New Pfister Hotel.*

*Wednesday, 9:30 A.M. Plankinton Hall, Auditorium.* Joint Session with Health Officers and Food and Nutrition Sections. (See page 14.)

*Thursday, 2:30 P.M. Plankinton Hall, Auditorium.* Joint Session with Public Health Engineering Section and International Association of Dairy and Milk Inspectors. (See page 21.)

## AMERICAN ASSOCIATION OF SCHOOL PHYSICIANS

*Monday, 9:30 A.M. Engleman Hall, Auditorium.* Joint Session with the Child Hygiene Section. (See page 3.)

*Tuesday, 9:30 A.M. First Session. Kilbourn Hall, Auditorium.*

### RELATIONSHIPS IN THE SCHOOL HEALTH PROGRAM

**Welfare Agencies and Health Supervision.** Speaker to be announced.
*Discussion.*

**School Department and Health Supervision.** MILTON C. POTTER.

**Coördinating These Agencies for School Health.** Address of the President, CHARLES H. KEENE, M.D.

*Wednesday, 9:30 A.M. Second Session. Pere Marquette Room, Hotel Schroeder.*

### TRAINING FOR SCHOOL HEALTH WORK IN PRIVATE AND PUBLIC SCHOOLS

**Aims of the School Health Program.** DON W. GUDAKUNST, M.D.
*Discussion.*

**Training of the School Nurse.**
Speaker to be announced.
*Discussion.*

**Training of the Health Educator.** JOHN SUNDWALL, PH.D., M.D.
*Discussion.*

**Training of the School Physician.** EARL E. KLEINSCHMIDT, M.D.
*Discussion.*

*Wednesday, 12:30 P.M. Pere Marquette Room, Hotel Schroeder.*
Luncheon Session. Committee Reports.

*Thursday, 9:30 A.M. Kilbourn Hall, Auditorium.* Joint Session with Public Health Education and Public Health Nursing Sections. (See page 17.)

## ASSOCIATION OF WOMEN IN PUBLIC HEALTH

*Monday, 6:30 P.M. Pere Marquette Room, Hotel Schroeder.* Dinner.

## CONFERENCE OF STATE LABORATORY DIRECTORS

*Sunday, October 6, 10:30 A.M. English Room, Hotel Schroeder.*

*Sunday, 12:30 P.M. English Room, Hotel Schroeder.* Luncheon.

*Sunday, 2:30 P.M. English Room, Hotel Schroeder.*

## CONFERENCE OF STATE SANITARY ENGINEERS

*Saturday, October 5, 9:30 A.M. and 2:30 P.M. Parlor B, Hotel Schroeder.*

*Monday, 9:30 A.M. Committee Room D, Auditorium.*

*Monday, 2:30 P.M. Juneau Hall North, Auditorium.* Joint Session with the Public Health Engineering Section. (See page 6.)

*Tuesday, 6:30 P.M.* Annual Engineers' Stag Dinner.

## CONFERENCE OF WISCONSIN HEALTH OFFICERS

*Monday, October 7, to Thursday, October 10. Headquarters, Wisconsin Hotel.*

## DELTA OMEGA

*Tuesday, 12:30 P.M. Pere Marquette Room, Hotel Schroeder.* Luncheon.

## HARVARD UNIVERSITY ALUMNI

*Wednesday, 8:00 A.M. Parlor C, Hotel Schroeder.* Breakfast.

## INTERNATIONAL SOCIETY OF MEDICAL HEALTH OFFICERS

*Monday, 12:30 P.M. Banquet Room, Hotel Schroeder.* Luncheon.

*Tuesday, 6:15 P.M. Ball Room, Hotel Schroeder.* Dinner.

## JOHNS HOPKINS ALUMNI

*Wednesday, 8:00 A.M. Parlor B, Hotel Schroeder.* Breakfast.

## MASSACHUSETTS INSTITUTE OF TECHNOLOGY ALUMNI

*Tuesday, 8:00 A.M. Parlor B, Hotel Schroeder.* Breakfast.

## NATIONAL COMMITTEE OF HEALTH COUNCIL EXECUTIVES

*Tuesday, 12:30 P.M. Parlor E, Hotel Schroeder.* Luncheon.

## INTERNATIONAL ASSOCIATION OF DAIRY AND MILK INSPECTORS

*Thursday, October 10, to Saturday, October 12. Headquarters, Wisconsin Hotel.*

*Thursday, 2:30 P.M. Plankinton Hall, Auditorium.* Joint Session with Public Health Engineering Section and Association of Dairy, Food and Drug Officials. (See page 21.)

## STATE DIRECTORS OF PUBLIC HEALTH NURSING

*Saturday, October 5. English Room, Hotel Schroeder.*

## STATE REGISTRATION EXECUTIVES

*Tuesday, 9:30 A.M. English Room, Hotel Schroeder.*

# THE FOURTH INSTITUTE ON HEALTH EDUCATION

**OCTOBER 4–6**

## THE PROGRAM

**HEALTH EDUCATION WITH SPECIAL REFERENCE TO SMALLER CITIES AND RURAL COMMUNITIES**

**Registration fee $5.00. Early registration is urged.**

**DIRECTOR**

MARJORIE DELAVAN, *Chairman*, Public Health Education Section

### SESSION I

*Friday, October 4, 2:30–5:00 P.M.*

LEADER, W. FRANK WALKER, DR.P.H.

Director Division of Health Studies, Commonwealth Fund, New York, N. Y.

SUBJECT MATTER

**How to Study Your Community**

**What You Will Find in Your Community**

**Making Health Education Programs on the Basis of What You Find**

An effort will be made to help the person responsible for a health education program to study the community and its problems in order that the program will be built upon the actual health needs of the community and the persons residing in it.

*Faculty Reception—5:30 P.M.* *Dinner—6:00 P.M.*

### SESSION II

*Friday, October 4, 7:00–9:30 P.M.*

LEADER, PROFESSOR WESLEY MAURER

University of Michigan, Ann Arbor, Mich.

SUBJECT MATTER

**The Enlistment of Community Forces for Health Education**

This session will deal with the organization of all of the forces in the community in order that all classes of persons will be reached. The discussion will be centered on such problems as those of obtaining the interest of the press, the clergy, the Grange, and clubs, and how these agencies may be used in a constructive program.

### SESSION III

*Saturday, October 5, 9:30 A.M.–12:00 M.*

SUBJECT MATTER

**Continuation of Second Session Subject and to include**
**"wangling, skull-duggery, finagling, shenaniganing and finesse"**

## THE FOURTH INSTITUTE ON HEALTH EDUCATION (Cont.)

### SESSION IV

*Saturday, October 5, 2:00–4:30 P.M.*

LEADER, EVART G. ROUTZAHN

Public Health Education Section Editor, *American Journal of Public Health*, New York, N. Y.

SUBJECT MATTER

**Technics of Applying Public Health Education in These Communities**

After studying the community to discover its health problems and engage the interest of those who influence public opinion, what are the most effective tools for spreading the information which is needed regarding these problems? The newspaper, the radio, literature, exhibits, group meetings and other devices will be discussed in this session, in order that the value of each medium may be understood.

### SESSION V

*Sunday, October 6, 10:00 A.M.–12:30 P.M.*

LEADER, RUTH E. GROUT

Director of Health Education Study, Cattaraugus County School Health Service, Olean, N. Y.

SUBJECT MATTER

**Technics of Applying School Health Education in Small Cities and Rural Communities**

The school health program aims to establish habits, practices, and attitudes toward health which will carry over into adult life and enable the individual to function as a healthy person. Education is discovering new and effective means for obtaining the interest and participation of the students.

The session on school health technics will be devoted to discussions of these means and their application by persons responsible for school health programs.

*Luncheon—1:00 P.M.*

### SESSION VI

*Sunday, October 6, 2:00–4:00 P.M.*

LEADER, MARJORIE DELAVAN

Director Bureau of Education, State Department of Health, Lansing, Mich.

SUBJECT MATTER

**General Summary and Conclusions**

« « ANNOUNCING » »

A New Edition of the

# REPORT ON CONTROL OF COMMUNICABLE DISEASES

The present revision, necessitated by increase in medical knowledge and experience, has been made by the Sub-committee on Communicable Disease Control of the Committee on Research and Standards, and it has been officially approved by the United States Public Health Service.

The terms used are first defined. Each disease is briefly described with regard to its clinical and laboratory recognition, the etiological agent, the source of infection, the mode of transmission, the incubation period, the period of communicability, susceptibility and immunity and prevalence.

Following this are offered methods of control—first, those affecting the individual, contacts, and immediate environment, and second, general and specific measures bearing upon the control of prevention of the disease in question.

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